RIODICAL ROOM
NERAL LIBRARY
IV. OF MICH.

STEEL

PRODUCTION • PROCESSING • DISTRIBUTION • USE

For forty-eight years—IRON TRADE REVIEW

OCT. 4 1932

WORLD'S LARGEST PRODUCER OF ...

... BEARING STEELS

BALL BEARING steel ... roller bearing steel ... marks of the steel maker's craftsmanship. No steels are subjected to more severe service ... none is bought to more rigid specification.

From the carefully controlled electric furnaces of Republic Steel Corporation comes the major portion of the bearing steels made in this country.

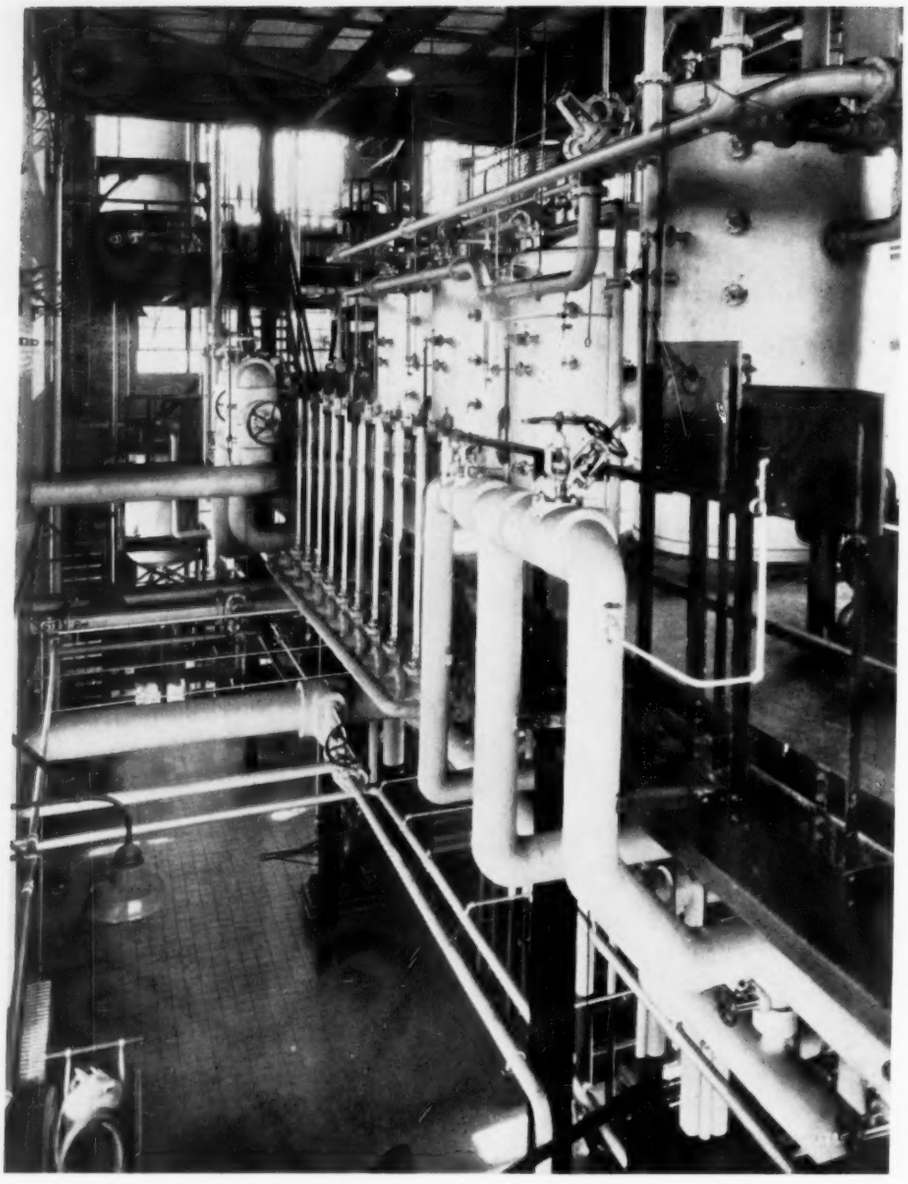
World's largest producer of quality steels ... world's largest producer of bearing steels ... possessor of America's finest metallurgical laboratories ... offering the experience of a metallurgical personnel whose alloy background and experience represent unchallenged leadership in the industry—Republic is well equipped to meet the most exacting requirements of any user of quality steels.

CENTRAL ALLOY DIVISION

REPUBLIC STEEL CORPORATION

MASSILLON OHIO

ACATHON STEELS



RESTORE • REPAIR • REPLACE •

- The Benzol and Light Oil Possibilities of Your By-Product Coke and Gas Plant May Show as Fine a Picture as Those of Several Plants Which We Have Studied Lately and Which Show Exceptionally Large Returns on New Equipment.
- We Particularly Recommend to Gas Companies That They Consider the Possibility of Operating Benzol Plants in Conjunction With By-Product Coke Plants.
- Koppers Builds: Becker Oven Plants . . . Benzol Plants . . . Refuse Incinerator Plants . . . Etc.

KOPPERS CONSTRUCTION COMPANY
Pittsburgh, Pa.

BENZOL PLANTS

Vol. 91, No. 14, Oct. 3, 1932, issue of STEEL, published weekly at Cleveland, O. Entered as second class matter at the post office, Cleveland, O., under the act of March 3, 1879. Subscription price U. S. $6 a year; single copies 25c. Canada $8.60. Foreign £2:8:0

STEEL

PRODUCTION

PROCESSING

DISTRIBUTION

USE

EDITORIAL STAFF
E. L. SHANER
EDITOR

ASSOCIATE EDITORS
E. C. BARRINGER — E. F. ROSS
A. J. HAIN — J. D. KNOX
G. H. MANLOVE — A. H. ALLEN

New York
E. C. KREUTZBERG — B. K. PRICE
L. E. BROWNE

Pittsburgh — *Chicago*
E. A. FRANCE JR. — W. G. GUDE

Washington — *London*
L. M. LAMM — VINCENT DELPORT

BUSINESS STAFF
GEORGE O. HAYS
BUSINESS MANAGER

New York
E. C. KREUTZBERG — E. W. KREUTZBERG

Pittsburgh
S. H. JASPER

Chicago
L. C. PELOTT

Cleveland
JOHN HENRY — R. C. JAENKE

R. T. MASON
CIRCULATION MANAGER

CONTENTS

October 3, 1932

THE WEEK IN PERSPECTIVE 9

The Voice of Industry 10
Charls Assistant to Lamont; Institute Program Maturing 11
Carnegie Steel Co. Revamps Sales Department 11
Seneca Directors Vote To Merge with Bethlehem 11
Flood of Steel Needs Ready for Release Gives Courage 12
Farm Needs for Steel Heavy; Better Prices Augur Buying 13
Business News from Washington 14
Here and There in Industry 14
Personals 15
Mirrors of Motordom 16
Obituary 17

EDITORIAL—Helping the Railroads To Help Themselves 18
THE BUSINESS TREND 19

STEEL Presents a Clinical Study of Open-Hearth Furnace Design:—Part I—Bottoms 23
Instrument Gives Record of Machine Production Time 27
Generator Vaporizes Oil for Industrial Furnace Use 28
New Product Development Is Industry's Hope for Future 29
Bulletin Provides Safety Instruction 29
Bridge Plaques of Stainless Steel 30
Large Uses of Steel in Small Ways—Car Pre-coolers 32
Making the Most of Methods and Materials 33
Progress in Steelmaking 35
New Books Worth Reading 36
New Equipment 38

MARKET REPORTS AND PRICES 41-56
CONSTRUCTION AND ENTERPRISE 57
WHERE-TO-BUY DEPARTMENT 61
ADVERTISERS' INDEX 74

STEEL is published every Monday by PENTON PUBLISHING CO., Penton Building, Cleveland, O. C. J. STARK, President; J. D. PEASE, Vice President; F. V. COLE Secretary. Member, Audit Bureau of Circulations; Associated Business Papers Inc., and National Publishers Association. Branch Offices: New York, 220 Broadway; Chicago, Peoples Gas building; Pittsburgh, Oliver building; San Francisco, Claus Spreckles building, 703 Market street; Washington, National Press building; Cincinnati, Schmidt building; London, Caxton House, Westminster, S. W. 1; Berlin, Lichterfeld-West, Dahlmerstrasse 64a, Germany. Subscription in the United States, Cuba and Mexico $6 per year; in Canada $8.60; in Great Britain and European countries £2:8s.

Entered as second class matter at postoffice at Cleveland under the Act of March 3, 1879.

Copyright 1932 by the Penton Publishing Co.

Very hard wire takes an *edgewise bend*

and retains its original properties

Have you ever seen tempered high carbon steel flatwire that could be wound edgewise with a pitch to it...and yet retain its original properties? It takes *some steel* to stand that...steel that has great strength, with a high degree of toughness and ductility. And it takes a deep knowledge of heat-treating and tempering, plus exceptional care throughout production to produce such steel.

This spiral section demonstrates Roebling's ability to handle the difficult jobs...to meet unusual and very exacting specifications. If you have a flat wire "worry", or require wire of highest quality, come to Roebling. We specialize on high quality cold-rolled high and low carbon flats, and we are particularly well-equipped to make high carbon "flats", tempered or untempered.

JOHN A. ROEBLING'S SONS CO., TRENTON, N. J.

Wire · Wire Rope · Copper & Insulated Wires & Cables
Welding Wire · Flat Wire · Wire Cloth & Wire Netting

New York Boston Chicago Philadelphia Atlanta Cleveland Seattle
San Francisco Los Angeles Portland Export Dept., New York, N.Y.

ROEBLING FLAT WIRE

Volume 91 Number 14

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

A PULMOTOR may sustain life artificially for a time, but eventually the patient's lungs must take hold or there is no recovery. Upon industry, Reconstruction Finance Corp. loans are functioning much like a pulmotor, and there is the customary anxious watching for first indications of revival. To the immense relief of everyone, these indications are beginning to appear. Scarcely any tonnage for R. F. C. projects actually has reached the rolling stage, yet the confidence that they and other measures for recovery have engendered is encouraging small consumers of iron and steel to re-enter the market and start building up modest inventories. In the past fortnight the increase in the number of small, diversified orders has been noteworthy (p. 41). The patient still has need for stimulants, but he is reviving.

Ordering Becomes a Patriotic Gesture

This broader base of market activity, which is more reassuring than the equivalent total from a few sources, in part manifests a new spirit, which is typified by a steel jobber in the Middle West whose quarterly contract is for 150 tons. Ten days ago this jobber checked his stock, then ordered 233 tons for immediate delivery—convinced, as he said, that prices will go no lower and desiring to contribute his bit to the general upward movement in business ....While these small needs are filtering through, R. F. C. activity continues unabated (p. 12), chiefly at this time in assimilating applications from railroads for "work" loans to get construction and repairing of equipment under way. Tunnel and bridge requirements for steel also loom large.

Calls Volume a Curse, but Industry Seeks It

The practical effect of this increase in demand, both large and small, is to put the steel-making rate (p. 41) up one point to 18 per cent as October opens, highest since early June. . . . While this gives September an average of 15 per cent and makes it the best producing month since June, it is far from connoting volume, the pursuit of which a spokesman for the fabricating industry blames for the depression (p. 17). Industry is recovering, he contends, because it has ceased to be dazzled by tonnage and is enthroning profit.

Institute Building Up Its Staff

While the markets are shaking off their depression inertia, the American Iron and Steel institute is making progress with its preparations for a more vigorous championing of the industry (p. 11). George H. Charls becomes assistant to R. P. Lamont, new president, with other additions to the institute staff and a closer

Reasons why steel will come back: The crib wall 36 feet long beside this West Virginia highway bridge is steel; a steel Caterpillar tractor is backfilling; truck and wheelbarrow are also largely of steel

relationship with the industry's trade associations probable. . . . Another adjustment is the approval by directors of the Seneca Iron & Steel Co. of the proposed merger (p. 11) with the Bethlehem Steel Corp.

Expect Lift from New Products

New products led industry to the heights in 1929 and new products will pull industry out of depression, engineers attending a conference at Cleveland were told (p. 29). Oddly enough, these lifesavers for industry will be conveniences or luxuries, as necessities account for only 15 per cent of production . . . . Introduction of these new products may be expedited by jobless engineers, a 10 per cent increase in attendance last year at the Engineering Societies library in New York being ascribed (p. 30) to depression-stimulated research . . . . Labor also had more time on its hands last year, the number of strikes being the greatest since 1926, and it is forecast (p. 14) that the return of business activity will be punctuated by more labor disorders.

Design Is Key to Open-Hearth Practice

As steel production expands it will become increasingly apparent that open-hearth furnace design has a most important bearing on operating practice, and hence that practice can be improved only by a thorough knowledge of accepted design. So, STEEL this week initiates an extended series of articles based upon a study of engineering, mechanical, construction and operating details of 16 stationary open-hearth furnaces of late American design, of 150 to 350 tons capacity. First of this series (p. 23) deals with furnace bottoms. . . . German research indicates (p. 35) that deoxidation of open-hearth steel with silicon and manganese is preferable to silicon alone.

"Look to the Body" in 1933 Autos

Other news developments of the week: Rising farm products prices betoken eventual heavier buying of equipment, but no sharp gain is promised (p. 13) . . . . As automobile programs for 1933 mature it appears that automobile salesmen will talk more of aerodynamics than horsepower or freewheeling (p. 16). . . . A survey shows that pentup demand for articles in which steel figures includes 8,838,000 refrigerators, 6,606,000 autos, 4,986,000 washing machines, 3,708,000 radios, 3,096,000 houses (p. 17). . . . A new instrument records the activity and idleness of machinery, supplying a daily log (p. 27). . . . Faithful to steel, the American Institute of Steel Construction will use stainless steel instead of bronze for plaques for its prize bridges (p. 30) . . . . A new use for steel is pre-coolers for railroad cars, taking 1500 pounds of steel each (p. 32).

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of STEEL *or of its editors.*

To the Editor:

Referring to your editorial of Sept. 19 "If You Produce, You Also Consume."

Your article seems to take the attitude that the buyer makes a mistake when he asks for a low price and you call it a "selfish, short-sighted attitude." It seems strange that the sales end of most businesses has no backbone and cries because a buyer tries to get a lower price. In most cases, these same sales departments, if the market were in their favor, would think nothing of gouging the buyer. The last sentence in your article says, "Doing to others as you would have them do to you will help greatly in the present critical task of imparting momentum to the wheels of business recovery." I may say that where the manufacturers have resale agreements among themselves or where they have a patented article on which they are absolutely certain they can hold the price, they are making no concessions to the buyer. Where the line is open to competition and the big organizations are still loaded down with excessive salaries, bonuses and commissions to executives who cannot execute, and their smaller competitors, without this overhead are taking business away from them, they seem to be making a great deal of fuss about it.

If we could slash every salary, bonus, commission, or income from any source over $5000 a year down to this point, there would be no necessity for Walter F. Teagle's wonderful work plan which is to make the low priced workers divide their work with the fellow who doesn't have any.

When we distribute money and goods properly, we will have no over-production and no crying about the chiseling or prices.

H. H. SUTTON

Glenshaw, Pa.

To the Editor:

Congratulations on your editorial on page 18 of your Sept. 19 issue.

According to Dr. Virgil Jordan, 75 per cent of the goods and services absorbed in 1929 were consumed by those earning less than $3000 per year and 85 per cent by those earning less than $5000 per year. At the present time those in this 85 per cent group are entirely without income or earning only a small fraction of their 1929 incomes. As a result money in circulation is scarce. Scarce money in turn raises the purchasing power of money until today our dollar will purchase the equivalent of $1.50 based on 1926 averages.

Our people are suffering today because of the unequal distribution of wealth or purchasing power. The quickest way to correct this condition is to tax out of existence all individual incomes of over $100,000 and to raise gift and inheritance taxes consistent with the higher taxes on incomes. This will force an increase in salaries, wages, compensation, etc. or the alternative of paying larger taxes on the excess income to the government.

Labor should have no quarrel with the introduction of labor saving machinery provided management will adopt the 30-hour week and thus give labor more leisure time for recreation, etc. This can be accomplished by the organization of all classes of workers and executives into unions or protective associations capable of attaining as a group the objects they could not secure as individuals.

This is a large order but it is high time the American people began to study the basic causes of our troubles and to take the necessary action to eliminate these causes.

V. G. FULLMAN

Latrobe, Pa. President, Fullman Mfg. Co.

Charls Assistant to Lamont; Institute Program Is Maturing

GEORGE H. CHARLS, who has been president and treasurer of the National Association of Flat Rolled Steel Manufacturers, Cleveland, Oct. 1 became assistant to R. P. Lamont, president of the American Iron and Steel institute, New York.

This appointment, the first since Mr. Lamont assumed office Aug. 18, is regarded as significant of progress in formulation of the institute's enlarged program, first announced at the spring meeting by Charles M. Schwab, now chairman.

Final details of this program are yet to be worked out, and in view of the enormity of the problems confronting the industry, progress necessarily must be slow.

To Co-ordinate Trade Groups

To date, activities of the new president, it is said, have been largely confined to a survey of conditions and the work of the various organizations identified with the steel industry.

It is expected that an effort will be made to co-ordinate the activities of all leading trade associations with the institute, but whether this will lead to the incorporation of some of these associations within the institute still is indefinite.

In fact, the belief prevails in usually well informed quarters that the institute will encourage the activities of various associations whose work has become highly organized. It is believed that the technical activities of the industry are in good hands and that in some branches noteworthy progress has been made in commercial research.

Look to Washington

Eventually, it is believed that the institute will establish offices in Washington to bring a closer relationship between the industry and the government. The vigor of the institute in combating imports of foreign steel already is bringing results.

Mr. Charls, who is now in New York, is 54. Prior to becoming commissioner of the Hot Rolled Strip institute in 1927, the forerunner of the present National Association of Flat Rolled Steel Manufacturers, he was a vice president of the American Rolling Mill Co. and later president of the United Alloy Steel Corp. He also was president of the Hiner Structural Steel Co.

A. N. Flora, who has been vice president of the National association, is assuming the duties of Mr. Charls. His headquarters are in the Terminal Tower, Cleveland.

Further addition to the staff of the institute are expected shortly.

Directors of Seneca Vote To Merge with Bethlehem

Buffalo—Directors of the Seneca Iron & Steel Co. Sept. 30 approved plans for merging the company with the Bethlehem Steel Corp. The terms were not made public but it is understood the merger will be entirely effected by an exchange of stock.

George H. Charls

Officials of the campany said there are 24 stockholders in the Seneca company and that because of the small number, ratification is expected at a meeting the middle of October.

The Seneca company, which was incorporated in 1906 for $3,000,000, operates a plant at Blasdell, Erie county, New York, having an annual capacity of 120,000 tons of sheets, mostly black. It has been one of the largest customers of Bethlehem for sheet bars.

Japan Forms Pig Iron Trust

Assistant Trade Commissioner Christopherson, at Mukden, reports to the department of commerce, at Washington, that it is understood a new trust will be formed by four Japanese companies for the joint sale of pig iron in Manchuria, Korea and Japan. These companies are the Mitsui, Mitsubishi, Okura and Southern Manchuria Cos.

Tata May Double Black and Galvanized Sheet Capacity

Directors of the Tata Iron & Steel Co. Ltd., largest producer of iron and steel products in India, have decided upon a program for doubling sheet production to 110,000 tons of black and galvanized annually, according to Trade Commissioner Richards at Calcutta, in forwarding to the department of commerce a report current there.

In the year 1931-32, output of the Tata company included 705,503 gross tons of coke, 804,736 tons of pig iron, 602,366 tons of ingots and 449,723 tons of salable steel. Over the preceding year this was an increase of 5.1 per cent in coke, 12.6 in pig iron, 4.2 in salable steel and a decline of 3.6 per cent in ingots.

Carnegie Revamps Sales Department

PITTSBURGH—Carnegie Steel Co. announces a change in its general sales department at Pittsburgh, effective Oct. 1.

The order and shipping departments and the general sales department will be combined into one department to be known as the general sales department. Under C. V. McKaig, vice president and general sales manager, the general sales department will consist of the following divisions:

1. Order division, under the managership of J. P. Kessler Jr. This division will handle all the work previously done in the ordering and shipping departments as well as order detail work formerly done in the various bureaus of the general sales department.

2. Rail and structural division, under the managership of J. C. Shields.

3. Bar, strip and semifinished materials division, under the managership of J. Halsey McKown.

4. Specialties division, under the managership of A. M. Harper, which will control the sales of various specialties such as steel sheet piling, track sections, coke by-products, slag.

5. Sales engineering division, which will be maintained by W. C. Oberg. This division will include all questions relating to the development of new sections and new products and will furnish technical engineering service in connection with the sale of all products.

Flood of Steel Wants Ready For Release Gives Courage

LIKE a river broadening as it taps successive tributaries on its flow to the ocean, so business is expanding through the incidence of numerous apparently unrelated developments, all of which contribute to various phases of recovery and expedite it.

Bulking largest at the moment, from the standpoint of generating requirements for iron and steel, is the Reconstruction Finance Corp., at Washington. While many projects proposed as self-liquidating ones, and hence believed eligible for loans, are failing to pass through the eye of the needle, nevertheless the total of funds advanced and material required is impressive.

Projects of large size which have formally won R.F.C. loans are:

New Orleans Belt Line bridge, requiring 21,600 tons of structurals for the river spans, 39,200 tons for approaches, 800 tons of reinforcing bars and 1000 tons of fabricated reinforcing trusses for the highway floor. Of this 62,000-ton total, the McClintic-Marshall Corp. is low on two-thirds, the American Bridge Co. low on much of the remainder.

Metropolitan Water District of Southern California, requirements being estimated as high as 150,000 tons of reinforcing bars, 47,000 tons of structurals and 15,000 tons of rails, spread over several years.

Pennsylvania railroad, for constructing 1285 freight cars, 15,000 tons.

Central Railroad of New Jersey, loan of $500,000 for repairing 75 locomotives, 900 freight cars, 55 passenger cars and repairing marine equipment in New York harbor.

Study Other Projects

Loans now under consideration include:

Port of New York Authority, tunnel under Hudson river at Thirty-eighth street, 150,000 tons; Staten Island tunnel, 25,000 tons.

San Francisco-Oakland bridge, 150,000 tons.

Baltimore & Ohio railroad, $3,000,000 for building 820 all-steel gondolas and repairing and rebuilding equipment.

New Haven railroad, $700,000 for repairing 93 locomotives and 160 freight cars.

A contribution is being made by government departments, the navy having a program of construction involving $10,000,000, and the army one of $2,500,000. The navy has ordered one destroyer each built at the New York, Philadelphia and Boston yards, requiring a total of 2100 tons of plates, shapes and other material.

At San Francisco, the Golden Gate bridge, delayed over a year in the courts, is maturing. New bids will be taken on Oct. 14 on the approaches, requiring 6800 tons, and on 28,000 tons of cable. On the main span the McClintic-Marshall Corp. is low on 75,000 tons.

Responsive to the Washington-inspired campaign to rehabilitate and re-equip industry, a canvass is being made of over 200 industrial concerns in the Pittsburgh district, the local subcommittee being headed by E. T. Weir, chairman of the National Steel Corp.

See Corporation Orders

At most of its plants the United States Steel Corp. is now checking its inventories and in a short time will order moderate quantities of supplies which have been permitted to run low. This purchasing will extend more to commodities which the Corporation itself does not manufacture. The $5,000,000 appropriated by the Corporation for rehabilitation may be supplemented shortly.

To build up its inventories the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has ordered 4,000,000 pounds of copper and it is expected to commit for other materials on a comparable basis.

The International Harvester Co., Chicago, also has embarked on a program to build up its inventory.

Remington-Rand Inc., New York, which recently covered on raw materials for the remainder of 1932 at a cost of $4,500,000, is increasing its payrolls 50 per cent and early in October expects to have its eight major plants on a 4-day week basis or better.

Stove Plant Operates Full

Birmingham Stove & Range Co., Birmingham, Ala., last week was operating on practically a full time basis and reported that orders in hand and business in sight, would warrant continuation of activity the rest of 1932.

Find Old Pig in Alabama

What is said to be the oldest piece of pig iron in Alabama, is on display at Russellville, Ala., after being plowed up in a field several miles away. It weighs over 200 pounds and is believed to be over 100 years old. It was made at the old Cedar Creek furnace. At the time it was produced, all pig iron was hauled from the furnace to Riverton, on the Tennessee river, where it was shipped to eastern ports.

Financial News of Steel Industry

LACLEDE STEEL CO., St. Louis, declared a quarterly dividend of 15 cents per share, payable Sept. 30 to record of Sept. 24. This is the same rate as the previous quarterly disbursement.

□ □ □

American Rolling Mill Co., Dayton, O., has declared the regular dividends on its 6 per cent and series B preferred stocks.

□ □ □

A. M. Byers Co., Pittsburgh, has declared the regular quarterly dividend of 1¾ per cent on the preferred stock payable Nov. 1, to record Oct. 14.

□ □ □

Harbison-Walker Refractories Co., Pittsburgh, has declared the regular quarterly dividend of $1.50 on the preferred stock payable Oct. 20, to record of Oct. 10.

□ □ □

Davidson Coke & Iron Co., Neville Island, Pa., stockholders have approved the reorganization plan whereby a new issue of 100,000 shares of prior preferred stock with a stated value of $50 per share will be authorized. About 40,000 shares will be issued. Stockholders approved the increase in funded debt from $4,000,000 to $6,500,000.

Safety Record at Cambria

Cambria plant of the Bethlehem Steel Co. at Johnstown, Pa., has had only one accident since Nov. 28, 1930, and that over a year ago, according to the National Safety council. This includes the blast furnace and coke oven departments. During this period 1,712,250 man-hours of labor were performed.

Cement Companies Resume

Birmingham, Ala.—Alpha Portland Cement Co. has resumed operations, with the Lehigh, Lone Star and other companies scheduling operations in October. The Alabama highway department is buying 500,000 barrels, with adjoining states also in the market.

Farm Needs for Steel Heavy; Better Prices Augur Buying

WHEN hog prices in the Middle West commenced to rise during late spring and early summer, the upturn marked the beginning of better prices of various farm commodities and development of a marked revision in business sentiment the country over.

With hope strengthening in the belief that a definite change in conditions is in the making, the question arises as to what part the farmer will play over ensuing months in the recovery of general industrial activity, and particularly that of the steel industry.

On the rule-of-thumb estimate that certain types of agricultural implement have a useful life of about 16 years it appears that a heavy pent-up demand for replacement of worn-out implements is pressing for satisfaction in the United States.

Yet the number of various units sold last year was far below the number placed in use in 1914. For instance, production of plows in 1931 was about 208,000, against 1,251,000 in 1914; mowers 49,000 last year and 274,000 in 1914; sulk rakes 139,000 in 1914 and 20,000 in 1931 and grain drills 89,000 to 14,000.

Money, Not Need, Is Problem

Some evidence that purchases are being curtailed by lack of funds rather than by lack of need for such equipment is seen in the fact that sales of used tools this year have been heavy. At the same time, business in repair parts has been light, makeshift repairs being resorted to instead of new parts, resulting in an even higher rate of depreciation.

One observer reports that on a recent drive through the country he saw 12 grain binders in the fields, three at work and the owners tinkering with the other nine to make them operate.

Prospects for sales of spring equipment still are not sufficiently clear for manufacturers to inaugurate large production programs, which ordinarily get under way at this time. For one thing, considerable money is tied up in old time-payment sales and the producer is unwilling or unable to convert his remaining capital into finished machines, confident though he may be regarding future business. Output last winter was in excess of sales, also, and this resulted in a surplus of equipment on hand.

Constructive developments in the general business situation, it is believed, will have a beneficial effect upon farm buying, since some purchases recently have been postponed as much because of the poor outlook in all industries as well as because of the sharp reduction in farm income.

A somewhat similar situation prevails in the market for other steel products such as fencing, barbed wire, sheet roofing, etc. Replacement business of considerable proportions has accumulated as the result of the poor activity of past months. A moderate seasonal upturn in demand has occurred during recent weeks and more is expected to develop as necessity dictates and as income improves. One important point frequently overlooked is the fact that purchasing power of the dollar is greater than it was two or three years ago; the steer sold today at $10 a hundred pounds will buy more than the one sold at $14 in 1929.

The farmer unaided cannot lead the way to better business since nationwide conditions have an important bearing on his income, but in recent developments in commodity prices his products, with the hog in the vanguard, have pointed out the right road, instilling a confidence that previously had been lacking.

Outlook Turning Bullish

Admittedly, the farm situation has improved since May. At Chicago, stock yard officials, steel producers, farm implement builders and other purveyors to the farmer are moderately hopeful. Predictions regarding future purchases of various types of equipment accounting in normal times for thousands of tons of steel are conservative, however, since improvement has been spotty, grain prices have reacted from their recent peaks and quotations are too low to insure a good return to the crop raiser, especially in wheat, but a few bright spots have replaced the black clouds of four months ago.

The showing in livestock since May far outshines the performance of grains. Extent of price recovery in the former best can be summed up by the statement that recently the cash realization on the marketing of cattle and hogs has returned to the country $5,000,000 more weekly than would have been realized on the same number of animals in May. A carload of prime cattle a few days ago at Chicago brought $2460, against a top price in May of $1836.

Higher Grain Prices Help

(Cents per Bushel)

	Last Week	1932 High	1932 Low	1931 High	1931 Low
Wheat	55	70½	46	84½	45
Corn	28¼	40½	28½	73	35¼
Oats	17¾	28¾	16¾	34¾	20½

Prices from Chicago Board of Trade.

HIS SMILE COMES EASIER WITH A SHARP RISE IN CORN PRICES: The corn knife and husking bee are falling victims of a mechanized age on the farm. This scene will shortly be typical of the Middle West corn belt, the picker being to corn what the combine is to wheat

The price of a carload of average cattle has risen $400 since May; the average on hogs is up $276.

Stock yard officials believe the outlook is the best in two years, even though livestock prices still are only about equal to figures at this time last year. Feeding costs are lower, however, and the cattle feeder was able to buy his stock at low prices this year, selling at the high, whereas in 1931 the situation was reversed.

It is apparent, however, that farm purchasing power is not being increased sufficiently to expect purchase of agricultural implements, steel fencing and other products to expand promptly in large volume. Manufacturers of farm machinery, however, see a better market in prospect and, as a result of developments since May, have assumed a more hopeful attitude regarding possibilities of improved business.

The cotton territory in particular is believed to offer promise for better equipment purchases. Cotton's meteoric rise of $20 a bale from the June low recently has been reduced to a gain of only around $10, but this figure still is several dollars a bale more than the market a year ago.

Implement manufacturers admit that the average farmer is hard pressed for surplus cash, but point out that equipment on American farms rarely has been in such a poor state of repair as at present and that replacement has been deferred too long. Agricultural tools are imperative if farming is to continue, and if business emanates only from the replacement of worn-out equipment without the addition of a single unit to the number in service, implement builders would experience a volume of business many times the recent rate.

Indexes Off in August

Washington—Iron and steel employment index number for August was 50.4, compared with 51.7 for July and 68.2 for August, 1931, taking 1926 as 100, according to the bureau of labor statistics. August payroll index number was 19.5, compared with 19.7 for July and 46.2 for last August.

Takes Arizona Molybdenum

Molybdenum Corp. of America, New York, has contracted for the ore output of large deposits of molybdenum concentrate at Mammoth, Ariz., for ten years. The company has been supplying its reduction plant at Washington, Pa., with concentrates from its own mine at Questa, N. Mex.

The Business Week In Washington

ALL finished iron and steel products imported into the United States must be plainly marked with the country of origin, under a sweeping order issued by the customs bureau of the treasury department. This is a distinct victory for domestic manufacturers and follows the ruling, effective July 16, that foreign concrete reinforcing bars must bear identification.

In his letter to the collectors of customs, F. X. A. Eble, commissioner of customs, notes that products "must be marked individually to indicate the country of origin under section 304 of the tariff act, such marking to be as nearly indelible and permanent as the nature of the articles will permit."

Specifically mentioned in this ruling are beams, girders, joists, angles, channels, car track channels, tees, columns, posts, all other structural shapes, sheet piling, rails, fish plates, splice bars, tie plates and railway bars.

If any of these articles are imported in containers, packages or coverings these must be marked to indicate the origin of their contents. The order will be effective in 90 days, or about Dec. 21.

Supplementing this ruling is one by the treasury that a bond must be filed on all imports, of which the question of dumping has been raised. This, it is believed, will be helpful in checking dumping of foreign steel.

Thomas J. Doherty, tariff counselor for the American Iron and Steel institute, is quoted as saying that the institute is continuing its efforts to make dumping difficult and eventually will prove cases of dumping. It is believed that the order requiring posting of a bond indicates the treasury is satisfied that there have been violations.

□ □ □

Representative Crisp, of Georgia, ranking Democratic member of the house ways and means committee, has been appointed to the tariff commission by President Hoover to fill the vacancy left by the recent death of Lincoln Dixon.

Labor Disputes Increase; Some Against Mechanism

Strikes and lockouts in the first six months of 1932 involved 149,614 workers, compared with 131,006 in the comparable period of 1931, and 91,456 in 1930, according to the department of labor, Washington. With the exception of 1929, the year 1931 had the greatest number of strikes since 1926, reports to the department show.

The number of man-days lost through disputes in the first six months this year was 3,986,182; last year, 2,564,680; and 1930, 1,433,800.

"It is evident from what has taken placed in the past 18 months that the return of business activity will be punctuated by numerous strikes," says the Associated Industries of Cleveland, in its current bulletin. This calls attention to the promise made by William Green, president, American Federation of Labor, to fight for a return to higher wages "now that the economic skies are clearing."

In Cleveland recently 150 employes of one steelworks made a demonstration against the use of a new continuous strip mill on the ground that its increased efficiency would reduce the number of men required. Employes of another Cleveland steelworks, according to the association, are organizing to make similar demands.

Here and There In Industry

GEORGE W. PRENTISS CO., Holyoke, Mass., has purchased the National Harris Wire Co., Newark, N. J. The sale was made by the National Harris Wire Co.'s receiver. The National Harris Wire Co. plant is equipped to manufacture a complete line of nickel-chrome and other alloy wire. It also is equipped to produce these alloys in strip, ribbon and tubing.

□ □ □

National Slag association has moved its office to 1449 Leader building, Cleveland. H. J. Love is manager.

□ □ □

Jeffrey Mfg. Co., Columbus, O., has moved its southwestern branch office from Houston to Dallas, Tex. T. P. Burke continues in charge.

□ □ □

Newport Rolling Mills, Newport, Ky., has placed an order with Surface Combustion Corp., Toledo, O., for a walking-beam sheet normalizing furnace, with hydraulic drive mechanism, for use with natural gas.

□ □ □

Foote Bros. Gear & Machine Co., Chicago, has appointed J. L. Kilroy, 114 Bauer avenue, Louisville, Ky., its representative in Kentucky and

(*Please turn to Page* 45)

Industrial Men in the Day's News

John A. Coakley, General Traffic Manager, United States Steel Corp. Subsidiaries

TRAFFIC is his life work and hobby; his fund of rates and grasp of detail are considered remarkable.

THIRTY-three years, continuously, has he been associated with the American Steel & Wire Co.

SINCE April, 1930, he has been vice president and a director of this subsidiary, at Cleveland.

A CONTEST to determine which traffic executive of iron and steel industry carries in his mind the greatest amount of rate and other pertinent data would find John A. Coakley in the finals. And this will stand him in good stead, for, as announced in STEEL for Sept. 26, he is now general traffic manager for eight important subsidiaries of the United States Steel Corp., and will supervise the transportation of more tonnage than any one man in the entire industry.

Only 51 on Sept. 22, Mr. Coakley has been identified with the industry 33 years, all of them with the American Steel & Wire Co. Entering the Pittsburgh traffic office of the Steel & Wire company in 1899, he remained there five years. Then, in 1904, he was transferred to Cleveland, where he has been since. Successively he was division freight agent and traffic manager, and on April 21, 1930, he was made vice president and a director of the company.

In his new post, which he assumed Oct. 1, he is supervisor of all traffic for the American Steel & Wire, American Sheet & Tin Plate, American Bridge, National Tube, Carnegie Steel, Lorain Steel, Illinois Steel, and H. C. Frick Coke Cos. His headquarters are in Pittsburgh, but for the time being he will reside in Cleveland.

Evidencing a deep interest in philanthropic work, Mr. Coakley is a trustee of the Associated Charities and is on the board of the Catholic Charities Corp. and St. Ann's hospital, all of Cleveland. His membership in the Pepper Pike and Country clubs, also of Cleveland, manifest his interest in golf. He also belongs to the Union club and the Traffic club of Cleveland.

W. S. GUY has been appointed traffic manager and C. W. Trust has been appointed as assistant for eight subsidiary companies to the United States Steel Corp. in what is called the eastern district, with headquarters at Pittsburgh. Mr. Guy formerly was traffic manager for the Carnegie Steel Co. and in his new position will govern traffic matters for the Carnegie Steel Co., American Bridge Co., American Sheet & Tin Plate Co., American Steel & Wire Co., H. C. Frick Coke Co., Illinois Steel Co., National Tube Co., and United States Coal & Coke Co., in the Pittsburgh, Cleveland and Johnstown, Pa., districts.

Murray N. Billings, for many years traffic manager for the Illinois Steel Co., Chicago, has been appointed traffic manager for the western district, with headquarters at Chicago, to function much as Mr. Guy will for the eastern district at Pittsburgh. W. O. Davis has been named assistant traffic manager, at Chicago.

These appointments follow the recent naming of John A. Coakley as general traffic manager, as noted in the sketch above.

□ □ □

W. H. Scott, for 13 years with the Duriron Co. Inc., Dayton, O., has been appointed general sales manager succeeding T. D. Slingman Jr., who has resigned. Mr. Scott had charge of the Atlanta and Philadelphia territories for the company, in 1929 becoming sales manager of the industrial department and head of the technical department.

□ □ □

F. J. Rudd has been appointed managing engineer of the motor department of the General Electric Co. It has been announced by N. J. Darling, manager of the River works at Lynn, Mass. He succeeds L. E. Underwood, who has been made manager of the Pittsfield, Mass., works of the company.

□ □ □

Harvey LeFevre, formerly sales manager of the H. K. Porter Co., Pittsburgh, has joined the forces of the Heisler Locomotove Works, Erie, Pa.

□ □ □

Ralph H. Anderson, formerly of Stedfast Roulston Inc., Boston, is now associated with the Austin-Hastings Co. Inc., Parkett Machinery Division, Boston.

□ □ □

William J. McKee, assistant manager of sales for the New York District of the National Tube Co., has been appointed manager of sales, succeeding Clifton Wharton Jr., retired.

MIRRORS OF MOTORDOM

DETROIT

LOCKED doors still guard the design and specifications of new automobile models, which will be put in production over the next 60 days and, with a few exceptions, be introduced between late November and the January shows, but enough is known to warrant the forecast that the major changes of 1933 will be in bodies.

By continuing their power plants and bodies with comparatively few changes from 1931 to 1932, automobile manufacturers literally saved needed millions. To provide their sales forces with something to talk about, manufacturers added a large number of gadgets, some of which will be missing from 1933 models.

Again, engines will be subordinated in sales talks. The successful salesman of 1933 will be versed in aerodynamics and talk glibly of the mechanics of fluid motion, for the tendency of the industry will be toward the teardrop design, with emphasis upon the saving in consumption of gasoline and oil at 45 miles an hour or faster.

Redesign Radiators, Fenders

This streamlining will present important redesign of rear quarters, fenders and radiator shells. More than one 1933 model is expected to disclose body lines reminiscent of the current Nash bodies and drop fenders and rakish radiator shells of the type which have made the present Graham line distinctive as well as a good seller.

It is safe to predict that in no year since General Motors has presented its complete family has there been such a thorough overhauling as is now in process. The Fisher strain which has run through General Motors bodies in much the same fashion that chins and noses have characterized the Bourbon and Hapsburg royal houses for generations is passing. So are vertical radiators with chrome plated mesh.

Buick, it is understood, will feature radically new fenders and an extremely slanting radiator. The goal of Buick engineers—a leverless car—will probably not be attempted before 1934, and while there has been an occasional rumor of a Buick twelve it is believed the mechanical changes will be subordinated to new bodies. LaSalle and Cadillac undoubtedly will continue to represent General Motors in the high-price eight and the twelve and sixteen cylinder fields.

Make Olds a Volume Car

Olds, still a six and an eight, will be put on a real volume production basis in 1933, if hopes are realized, and will be the smart, low price car of General Motors, essaying the role of DeSoto in the Chrysler lineup. Olds will be slightly lower priced, to escape the blighting influence of the cheapest Buick, and Pontiac will be depressed to minimize competition at the bottom of the Olds market.

Knudson, of Chevrolet, will manufacture two sixes and one eight, continuing the Chevrolet and Pontiac names and adding, possibly, the Mercury. One of these low price lines, either Pontiac or the one labelled Mercury in current reports, will be sold by all General Motors dealers, much as Plymouth now cuts across all Chrysler representatives.

Dodge will be the spearhead of the Chrysler thrust at the 1933 market, involving not only complete restyling of the present six and eight but possibly also an entry in the Ford-Chevrolet-Willys-Essex field. In contrast to the rounded DeSoto radiator, the new Dodge is expected to have a radical rake. Plymouth, now in production, will be a six.

A few years ago Auburn matured from a mediocrity to a hit by noteworthy insurgency against the then current body lines. Other manufacturers have now caught up with Auburn, and the latter is again likely to try its wings and see whether it can pioneer twice. Hupp in 1933 will be as radical in redesigning its low price line as it was in 1932 with the high price one.

As noted several weeks ago, Willys has designed a light, low price car with drop fenders and streamlined to the point of making the headlights integral with the front fender. Hudson is nearing a decision on its program for 1933, unofficially reported to embrace a Hudson twelve and an Essex eight. The new low price Continental will be another entry into the bottom of the market.

Regardless of semiofficial denials, Detroit remains unconvinced that Ford changes are not scheduled for early 1933. By all checks that have proved indicative in the past, something is "on the boards" at Fordson. The best guess is that the eight will be improved mechanically without announcement, but that the four will be revised and reduced in price to give competitors a run in what Mr. Ford has long regarded as his market. The Lincoln eight may be superseded by a comparatively low price twelve.

More Talk of Diesels

There is increasing discussion of the eventual rise of diesel power and an occasional report that a new manufacturer will offer a diesel car of medium size for $1500 in 1933, but the immediate prospect is nothing for gasoline interests to worry about. Sustained, even speeds appear best suited to diesel engines, at this stage of development, and the stop light is a foe to be overcome. The Gotfredson interests are now building four and six cylinder diesel engines for trucks, priced $600 to $1000 over gasoline equipment.

Experiments in mounting engines over rear axles are proceeding, but nothing is in sight for next year.

Wooden wheels will be in a small minority on 1933 models, with the steel

spoke wheel, as distinguished from the wire wheel, in great favor. Small wheels, with a large hub and wide steel spokes, on which low pressure colored balloon tires are mounted will be seen on the sportier models next year.

Final statistics of the department of commerce for August give it a total of 90,324 cars and trucks in the United States. This compares with 111,141 for July and 183,092 for June. While August was the poorest month this year, it slightly topped expectations.

September undoubtedly developed a further loss, due to the tapering off on 1932 models and failure of Ford to regain its stride. A few weeks ago it appeared that October would show a marked gain over September, but as the month opens this is less certain.

Ford is off to 3 days a week, scarcely 2000 units a day. Chevrolet, on the other hand, is assembling about 10,000 more 1932 models than expected, due to improved retail sales. Truck demand also is brisker. On the other hand, there is less haste in swinging into production on new models than was indicated recently. Sentiment for the long pull is undiminished, but the comeback in the retail market does not warrant rushing the introduction of new jobs much before the January shows.

General Motors' decision to close its Chevrolet and Fisher plants at Janesville, Wis., because of excessive taxes may be reversed if the anti-LaFollette movement carries in the November election, as in the September primary . . . . With White passing to Studebaker, Cleveland loses its last home-owned automobile plant. Hupp now is operating the Chandler-Cleveland plants, and Peerless is closed. Winton, Templar, Stearns, Gaeth, Rollin and Lozier are some of the passenger cars on the Cleveland mortality roll. . . . The new rear axle for Ford eights, providing a bearing behind the pinion gear, is almost identical with the truck axle.

Refrigerators and Autos Lead Deferred Demand

Based upon a thorough survey of 1110 of its employes in 73 cities, the Graybar Electric Co., Chicago, estimates that deferred demand in the United States includes 8,838,000 refrigerators, 6,606,000 automobiles, 4,986,000 washing machines, 3,708,000 radios, 3,096,000 residences and 2,900,000 ironing machines.

On the same basis, deferred demand also includes $1,990,000,000 worth of furniture, $1,494,000,000 of women's clothing, $1,104,000,000 of men's clothing, $816,000,000 of rugs and floor coverings, and $451,656,000 of musical instruments.

Obituaries

JOSEPH R. BATES, 56, Pittsburgh district manager of sales for the American Sheet & Tin Plate Co., Pittsburgh, died Sept. 26, at Pittsburgh. He was a native of Philadelphia and went to Pittsburgh 28 years ago. For the past 25 years he had been Pittsburgh district manager for the company. He was a member of the Pittsburgh Field club, Duquesne club, and Pittsburgh Athletic association.

□ □ □

Matthew Vierengel, 76, president of the M. Vierengel Machine Co., Brooklyn, N. Y., died Sept. 19.

□ □ □

Peter G. Minier, superintendent, Russell Car & Snow Plow Co., Ridgway, Pa., died Sept. 23.

□ □ □

Paul J. Mauer, 48, secretary and assistant treasurer, Atlantic Steel Casting Co., Chester, Pa., died Sept. 9.

□ □ □

Frank L. Squires, 44 treasurer, Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn., died Sept. 29.

□ □ □

Vincent G. Apple, 58, since 1916 proprietor of the Apple Laboratories, Dayton, O., and inventor of many automotive devices died at Dayton, Sept. 25.

□ □ □

Frank H. Cole, 60, engineer and inventor, and for the past four years superintendent and engineer of the Boiler Appliance Co., Watertown, Mass., died Sept. 9.

□ □ □

Dudley M. Pitcock, 62, superintendent, Universal Steel Co., Bridgeville, Pa., died at his home in Massillon, O., Sept. 13. He formerly was superintendent of the Massillon Rolling Mill Co.

□ □ □

Aubrey D. Hiles, 78, formerly an executive of the Gurney Ball Bearing Co., Jamestown, N. Y., who retired when the company was taken over by the Marlin-Rockwell Corp., died Sept. 22.

□ □ □

A. L. Henry, 75, for a number of years president of the Standard Metal Co., Indianapolis, died recently. He was born at Ladoga, Ind., and lived there until 25 years ago, when he moved to Indianapolis and founded this company.

□ □ □

James H. Kinney, 50, vice president and general manager of the Cyclone Fence Co., Waukegan, Ill. subsidiary of the United States Steel Corp., died Sept. 21. He had been identified with the fence industry since 1900, at which date he joined the Cleveland Cyclone Fence Co., later becoming general manager. In 1916 this company was merged with the Waukegan company and in 1921 he was transferred to the latter city in his recent capacity. He also is president of the Standard Fence Co., Oakland, Calif., a subsidiary.

□ □ □

Dr. Frederick H. Hatch, 68, past president of the Institute of Mining and Metallurgy, and ir 1919 member of a commission that investigated the iron and steel situation in France, Belgium and the occupied areas of Germany, died at London, Sept. 22.

□ □ □

Theodore W. Siemon, 73, a former vice president, treasurer and director of the Union Switch & Signal Co., Swissvale, Pa., died at Pittsburgh, Sept. 22. He was retired from active business affiliation with the company at the time of his death. At one time he was associated with Louis, Oliver & Phillips Co., old iron and steel manufacturer.

□ □ □

N. George Petinot, 51, assistant to the president of the Vanadium Corp. of America, New York, died at Rye, N. Y., Sept. 24. A native of France, he came to the United States in 1906 with M. Heroult, inventor of the heroult electric furnace. He became associated with the Titanium Alloys Mfg. Corp., Niagara Falls, N. Y., in 1909, leaving to become sales manager of the United States Ferroalloys Corp., Niagara Falls, in 1919, and going with the Vanadium corporation when it absorbed the United States company in 1924. He has been spending half of his time each year in Paris as the company's European representative.

Profits, Not Volume, To Restore Business—Abbott

Business recovery, rapidly becoming apparent, will be expedited by the new sales policies which many corporations have been compelled to adopt to meet new competitive conditions, declared Charles F. Abbott, executive director, American Institute of Steel Construction Inc., New York, in addressing the Sales Executive Club of New York, Sept. 29.

The depression was made the more acute because industry attempted to force sales, believing that volume would create profits. Now it is seen, said Mr. Abbott, that recovery only is possible as profit is made paramount and volume becomes subordinate to it.

Mr. Abbott warned that unless industry takes the initiative and puts its own house in order, the government may be forced to do so. The antitrust laws, he said, prevent any improvement by agreements, but they should however be modernized and intelligently interpreted to business.

EDITORIAL

Helping the Railroads To Help Themselves

APPOINTMENT of a committee, consisting of Calvin Coolidge, Bernard M. Baruch, Alfred E. Smith, Clark Howell Sr. and Alexander Legge, to study means of helping American railroads in solving their numerous problems is further evidence of the seriousness of the present transportation situation. The assistance of this distinguished group will be timely, because the railroads and their problems are misunderstood generally throughout the country.

Unfortunately the transportation system has been permitted to drift into a position which makes it difficult for industrial shippers and the public to sympathize wholeheartedly with the railroads, even though it is recognized that they have not had a fair deal. Freight rates are considered to be too high. Capitalization of many roads is excessive in proportion to the service rendered or required. Duplication of lines and the inflexibility of operations make for inefficiency. Moreover the arrogant attitudes of many carriers in the past are not easily forgotten.

Powerful Influences Are Enrolled To Bolster Position of Railroads

The result is that the industrial public is somewhat annoyed at the railroads, yet it realizes that they are essential to the welfare of the nation and that their problems must be solved at least in part before prosperity can return to industry. Accordingly powerful efforts are being made to save weak systems from bankruptcy and numerous industrial concerns are urging their customers to "ship by rail." These and many other attempts to nurse the carriers through this acute period are prompted more by the necessity of safeguarding the interests of investors and shippers than by outright sympathy for the roads themselves.

However the railroad executives can present an impressive case if they choose to do so. If they could free themselves of individual selfishness and if some of the restraints of red tape and federal supervision could be eliminated, they would be in a position to show the country conclusively that their properties have suffered from subsidized competition to an extent probably unequalled in American history. Perhaps the committee of eminent men headed by Mr. Coolidge will succeed in presenting this case convincingly.

For instance, consider motor truck competition. This subject has been discussed at length but the public still is unaware of its true economic importance. There is a general belief that operators of trucks pay a generous part of road construction and maintenance costs through gas taxes. Reliable estimates indicate that in Ohio and Pennsylvania about 85 to 90 per cent of the total gasoline tax is paid by the owners of pleasure vehicles and that only 10 to 15 per cent is derived from trucks.

Much of Highway Construction and Repair Made Necessary by Truck Traffic

Another important point is that a disproportionate part of the cost of roads is made necessary by truck traffic. In rolling country, roads for main highway traffic cost about $40,000 per mile. If trucks did not have to be accommodated, the highway, suitable for all automobile and farm traffic, could be built for $20,000 per mile.

This also is true of highway bridges and grade elimination projects. The difference in cost between a bridge capable of supporting 15-ton truck loads and a bridge strong enough for passenger car and farm or small truck loads is considerable. Some of the highway bridges and viaducts erected in recent years are strong enough to carry heavy locomotives.

The startling aggregate cost of providing the extra strength for truck traffic is borne by taxes, only an insignificant fraction of which is paid by truck operators. Truck transport companies enjoy a gigantic subsidy to the extent that they avoid their share of this cost.

Steelmakers and fabricators share with the public the hope that this cost may be distributed more equitably. If truck owners were compelled to pay their share, their rates would be higher and more traffic would be diverted back to the railroads. Builders of trucks have nothing to fear from this action, because it would help stabilize the commercial trucking business by concentrating it in the hands of more responsible companies. Continued abuse of rights by irresponsible truckers, if not arrested soon, will lead to restrictions so severe that heavy trucks will be practically prohibited by state legislation.

The railroads have a strong case. It is to be hoped that they can present it in terms strong enough to win public attention and action.

THE BUSINESS TREND

Employment Is Important at Present Stage of Recovery

OCTOBER promises to be an important month in the struggle for business recovery. Indications at the end of September point to a slightly rising trend in industrial activity. Reports of railroad freight volume, electric power output, steelworks operating rate and commodity price fluctuations continue on the favorable side.

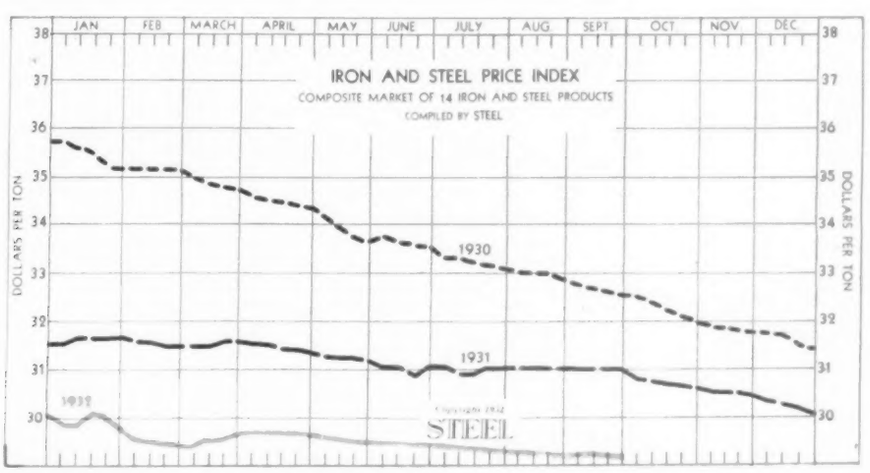
While the persistent gains in these indicators, in spite of occasional slight recessions, are gratifying, the business world now is interested in knowing when the moderate improvement in industrial activity will be trasferred into a worthwhile gain in employment. Unfortunately the status of employment cannot be judged accurately until the monthly reports are available and these are issued several weeks after the close of each month.

Employment indexes for August show a slight gain but the indexes of industrial payrolls are somewhat conflicting. One barometer of payrolls showed a slight gain and another indicated a small loss. In September and probably to a greater extent in October the tendency will be toward employment of a larger number of workers. This will be due partly to the return to work of many who were idle or nearly so during the summer months and also to the growing practice of "spreading" available work more widely.

Industrial executives are beginning to see possibilities in the activity of the Robertson committee on industrial rehabilitation. This movement is based on the sound premise that certain companies are approaching positions that will permit them to think in terms of rebuilding instead of retrenching. The executives of many of these well managed concerns realize that the time is near when they will be forced to make certain expenditures for capital goods.

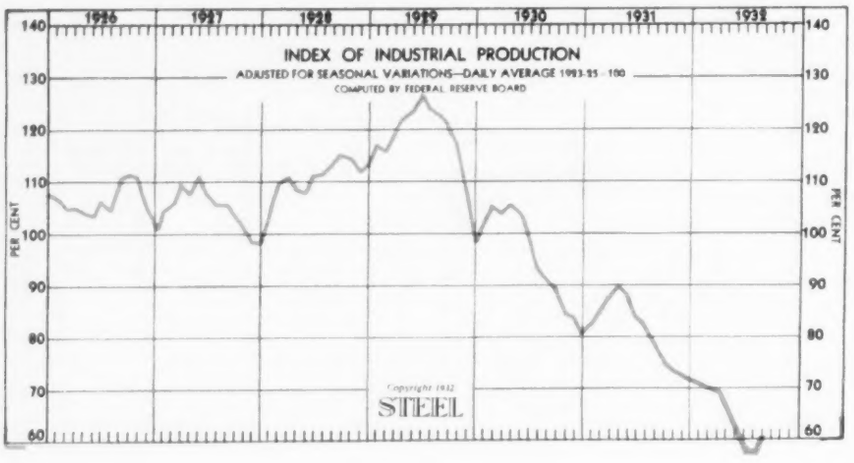
Robertson and Teagle Committees May Give Impetus To Business

Left to their own devices, many of them would wait for somebody else to make the first move. The Robertson idea is to break this hesitancy by persuading or helping those who are able to go ahead to do so now in unison. The argument, as Mr. Robertson is presenting it in his talks throughout the country, is convincing. The work of his committee, coupled with that on employment by the committee headed by Mr. Teagle, seems destined to become an important factor in the present movement for business recovery.



1932	
Sept. 24	$29.32
Sept. 17	29.32
Sept. 10	29.32
Sept. 3	29.32

1931	
Sept. 23	$31.02
Sept. 16	31.03
Sept. 9	31.04
Sept. 2	31.04



August, 1932	60
July, 1932	58
August, 1931	78

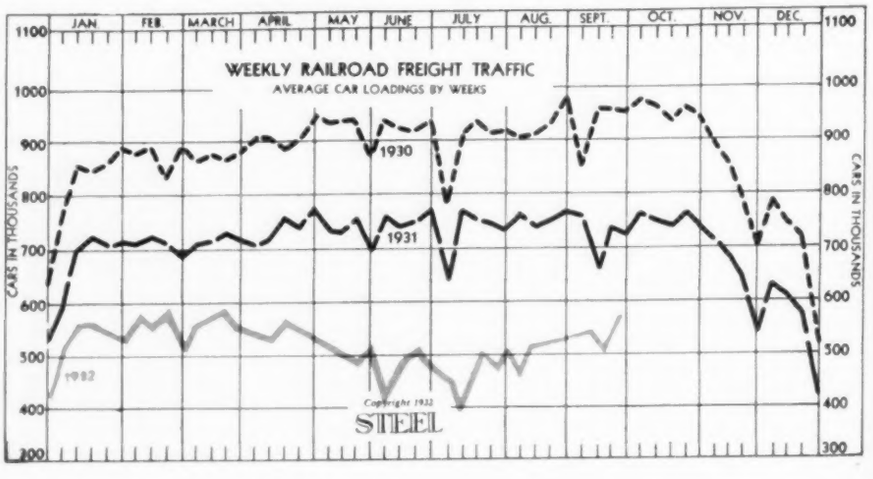
Index of Industrial Production Reflects General Business Upturn

The index of industrial production compiled by the Federal Reserve board was up two points to 60 in August from the revised index for July. This is the first upward movement the index has made since May, 1931 when it stood at 89. Among the component parts of the index, manufactures gained three points to 60 with adjustment for seasonal variation. Building construction, gained from 27 to 29 in value of contacts awarded. In the manufacturing group, iron and steel was off two points to 23, textiles made a gain of 20 points to 89 while automobiles dropped from 33 to 23. Those industries reported no change in the rate from July to August include iron ore, the index for which held at 8.

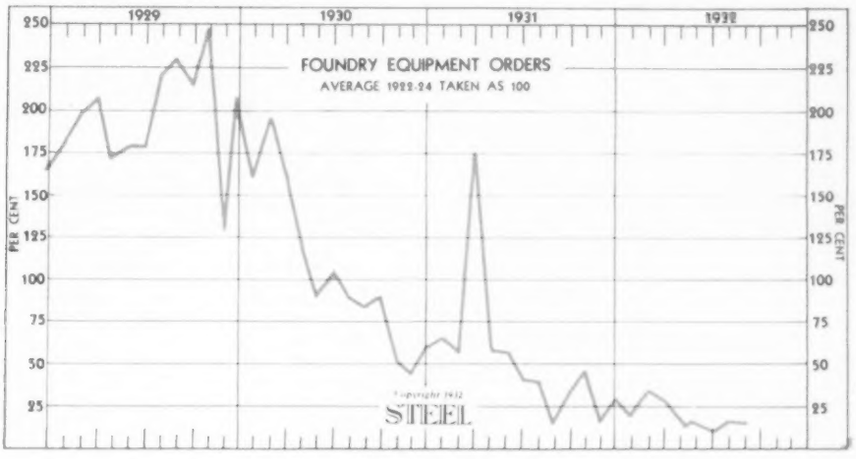
Freight Car Loadings Continue Gain; Highest Since Dec. 12, 1931

Loading of revenue freight for the week ended Sept. 17 totaled 587,302 cars, the highest of any week since Dec. 12, 1931, according to reports of the American Railway association. Total for the week of Sept. 17 was 85,478 cars above the preceding week when loadings were reduced because of Labor Day, but was 155,312 cars under the same week in 1931 and 365,259 cars below the same week two years ago. The greatest gains were registered in merchandise and miscellaneous freight shipments. Less than car lot merchandise loadings totaled 177,349 cars an increase of 27,046 cars above the preceding week. Miscellaneous freight gained 34,257 cars for a total of 217,630 cars for the current week.

	1932	1931
Sept. 17	587,302	742,614
Sept. 10	501,903	667,829
Sept. 3	559,727	759,871
Aug. 27	537,973	768,551
Aug. 20	518,642	748,600



	1932	1931
Aug.	18.6	16.9
July	18.7	38.7
June	14.2	40.9
May	18.0	54.1
April	13.9	57.7

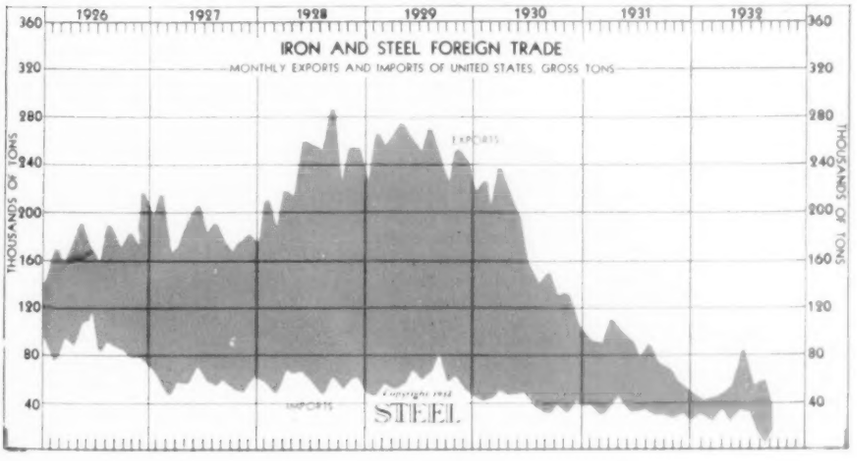


Foundry Equipment Orders Are Steady; Shipments Gain in August

The index of foundry equipment orders remained virtually unchanged during August, according to the monthly report issued by the Foundry Equipment Manufacturers' association. The current index of gross orders stood at 18.6 compared to 18.7 for July and 16.9 in August last year. The index for shipments was 29.8 a gain over 16.5 in the previous month but below the shipment index of 37.4 for August, 1931. Unfilled orders declined from 25.8 to 15.2 for August. The index of new orders, which is usually subject to sharp fluctuations, has thus far this year shown little tendency to vary from the 25 per cent mark. The average for eight months stands at 20.7.

Export Trade in Iron and Steel Down as Imports Gain

The sharp loss of nearly 20,000 tons in iron and steel exports coupled with the rise of imports, lowered the favorable trade balance of this country's iron and steel foreign trade in August to 9,332 gross tons. According to the compilation of the iron and steel division, department of commerce, exports in August totaled 32,955 gross tons compared to 52,558 in July and 75,338 tons in August last year. The August figure represents the lowest tonnage shipped from this country during the past 14 years. Imports in August gained 5618 tons over the preceding month for a total of 23,623 gross tons. This sharp rise can largely be contributed to the increase of pig iron imports which gained 6525 tons.



Exports	Tons
August, 1932	32,955
July, 1932	52,558
August, 1931	73,338

Imports	
August, 1932	23,623
July, 1932	18,005
August, 1931	30,139

STEEL *Presents*—

A CLINICAL STUDY OF OPEN-HEARTH FURNACE DESIGN

OPEN-HEARTH practice in American steelworks is far from uniform. Some operators obtain better results from roofs than others. In certain works the experience with bottoms is decidedly better than that in other establishments. Back and front walls present difficulties to a few steelmakers, while others seem to have little trouble with them.

It is apparent that if one could study a cross section of the best practice and could have available data on the most satisfactory experience with each important component in open-hearth design, he would be assisted greatly in improving his own practice.

This is the idea behind the series of articles on open-hearth design which will be published in STEEL, beginning with this issue. The author, William C. Buell Jr., uses for a basis of consideration and study the engineering, mechanical, construction and operating details of 16 stationary open-hearth furnaces of late American design rated from 150 to 350 tons nominal ingot capacity per heat.

Principal components such as bottoms, back walls, roofs and ends, and lines are analyzed comparatively and capital and operating costs established. From data so developed, the author suggests the better methods as deduced that may be incorporated in an improved design.

Throughout the treatise the value of the opinions of the operating man has been recognized and the usual objections from that source reduced by placing the fundamentals of design in such a form as to carry understanding to the lay as well as the technical reader.

The subjects of temperature gradients and heat flow through refractories, which always have appeared as intricate calculation to the uninitiated, are treated by graphic methods to clarify and greatly simplify these problems as found in open-hearth furnace design. A synopsis of the series of articles follows:

Part I—BOTTOMS

a. Details of bottoms now in use.
b. Bottom refractory costs.
c. A review of methods of heat flow calculation and the development of a graphic method.
d. Heat flow through the various bottoms.
e. A comparison of existing furnace bottoms.
f. Refractories for furnace bottoms.
g. A method of designing furnace bottoms.
h. The establishment of values to compensate for the differing areas of bath surface, inner refractory surface and outer surface.
i. Bath area and volume for furnace 150 to 350 tons.
j. Flame temperatures to satisfy bottom radiation requirements.
k. The capital cost of the refractories and the cost of radiated heat.
l. Details of the bottom steel.
m. Diagrams and comments on the steel of various bottoms.

Part II—BACK AND FRONT WALLS

a. Details of back walls now in use.
b. Present construction.
c. Capital costs of back walls.
d. Thermal properties of back walls.
e. Operating costs.
f. Refractories for back walls.
g. Back wall design.
h. Improved back wall costs.
i. The outer casing.
j. Front walls.

Part III—ROOFS AND THEIR SUPPORTS

a. Details of roofs and the binding system of present construction.
b. Discussion of roof refractories at present available.
c. The capital cost of silica brick roofs.
d. The life of roofs at constant ingot cost.
e. Heat flow through silica roofs.
f. Operating costs.
g. The insulation of roofs.
h. The design of the roof as an arch.
i. Methods of laying roof brick.
j. Skew systems at present employed.
k. The mechanics of the skew system.
l. Binding systems at present in use.
m. An analysis of the stresses in buckstays.
n. A suggested binding system.

Part IV—FURNACE ENDS

a. Details of furnace ends.
b. Present construction.
c. Thermal properties of ends.
d. Operating costs.
e. Refractories for ends.
f. End design.
g. The casing of ends.

Part V—FURNACE LINES

a. Roof and throat lines of present furnaces.
b. The development of the flow diagram and its use in the rational design of the open-hearth furnace.
c. A method of commonly rating furnaces to include such factors as area and volume of the bath and time of heat.

IMPROVING OPEN-HEARTH FURNACE DESIGN

By WILLIAM C. BUELL JR

Part I—Bottoms

MOST of the literature on the open-hearth furnace is of a general rather than of a specific character and, hence, is of little value to the designer or operator who would make improvements. Articles dealing with the open hearth are general probably because of the enormity of the detail of the subject, and to the fact that studies of, or researches in, the detailed components seldom have been made. In many cases, however, results of studies have been considered as confidential information. Then, too, individuals that might be competent to consider and analyze have been so located that information from plants other than their own has not been available, and, therefore, they have been handicapped by a dearth of knowledge on parallel practice.

The usages of American business practices are such, that, following the signing of a contract, or the issuance of a plant authorization, for the design and construction, or the rebuilding of, an open-hearth furnace, little or no time ordinarily is available for investigation or research in the many details of the furnace that might be improved. A usual provision in the direction to proceed with such work is a clause in substance, "operation in the least possible time." The primary object of this work is to consider some of the details that have an important bearing on economy of construction and operation so that all who could study the subject, be they in agreement or disagreement with the ideas advanced herein, may be in a position to take positive action in connection with the details discussed when confronted with a project for the designing or redesigning of an open-hearth furnace. No adequate work on open-hearth furnace construction reasonably can be presented in its entirety because of the magnitude of the subject. Consequently a number of the important components will be treated individually.

Sixteen modern American stationary open-hearth furnaces have been selected for the purpose of analysis. These are rated nominally at 100 to 350 tons capacity, with the majority about 150 tons capacity. The latter size would appear to represent the consensus of opinion as to the economic ca-

Table I

Bath Capacity and Dimension

Furnace	Rated capacity, tons: Designer's	Graphic	Pouring	B.t.u. per gross ton	Net bath dimensions: length, ft.-in.	width, ‡depth, ft.-in.	in.	*Area sq. ft.	*Volume, cu. ft.
A	150	114.0	†150	.....	36-6	14-0	33	470	594
B	.....	.....	.....	.....	.....	.....	.....	.....	.....
C	100	110.9	.....	.....	30-0	18-4½	32	480	577.5
D	100	118.8	113.8	5,250,000	41-0	13-6	32	520	619
E	100	116.0	125.0	4,800,000	39-6	13-6	33	495	605
F	150	186.7	.....	.....	50-0	14-0	38	660	973
G	130	132.0	132	4,450,000	40-0	13-6	36	500	687.5
H	120	102.4	.....	.....	39-0	14-0	29	505	533.5
I	150	169.0	†180	4,500,000	46-0	15-0	36	645	880
J	150	161.2	.....	.....	46-0	16-0	33	680	840
K	150	138.3	.....	.....	46-0	15-0	32	645	770
L	150	172.6	.....	.....	46-9	15-0	36	655	900
M	200	214.0	215.6	4,881,000	40-6	15-6	48	575	1114
N	250	158.5	†250	.....	40-0	16-0	37	585	825
O	300	214.0	†300	.....	47-0	18-0	37	775	1114

*Graphic Methods. †Claimed.

‡The depth given is the total below the foreplate. In computing the metal capacity 6 inches of the depth is deducted for slag.

pacity in American practice. Furnaces listed by letter in Table I have been selected from several plants and represent a complete cross section of late design. No data are included excepting those which have been developed from operations extending over a sufficient time to make the figures truly representative.

The term "furnace bottom" is assumed to cover that part of the furnace below the foreplate or door sill line, including the bath of molten metal and slag, the refractory and insulation forming the hearth and banks and the containing and supporting structure. The bath is assumed to consist of a covering of 6 inches of slag with a depth of molten steel sufficient to produce the ascribed depth.

The term "refractory" is used in a general sense as including basic or neutral material, firebrick and insulation that collectively are used to form the complete hearth.

Partial sections of the bottoms, on the longitudinal center lines of the hearths of the furnaces of the primary group are shown in Fig. 1. All considerations of these bottoms are taken as at the point of greatest bath depth and the least refractory depth which, while the location of the greatest heat flow, highest outer temperature, and greatest loading, is the location of lowest refractory costs.

As the bath is developed from

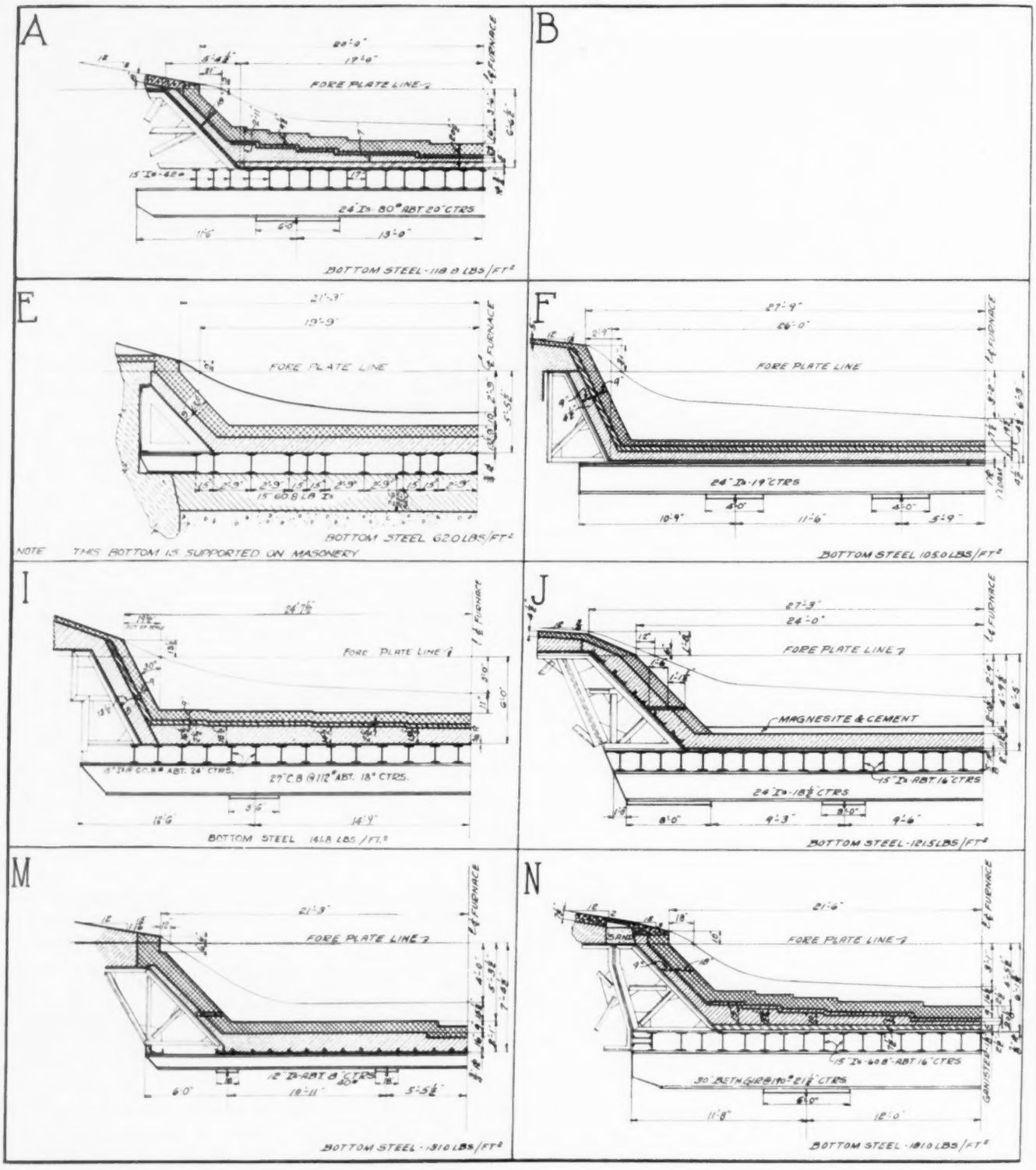
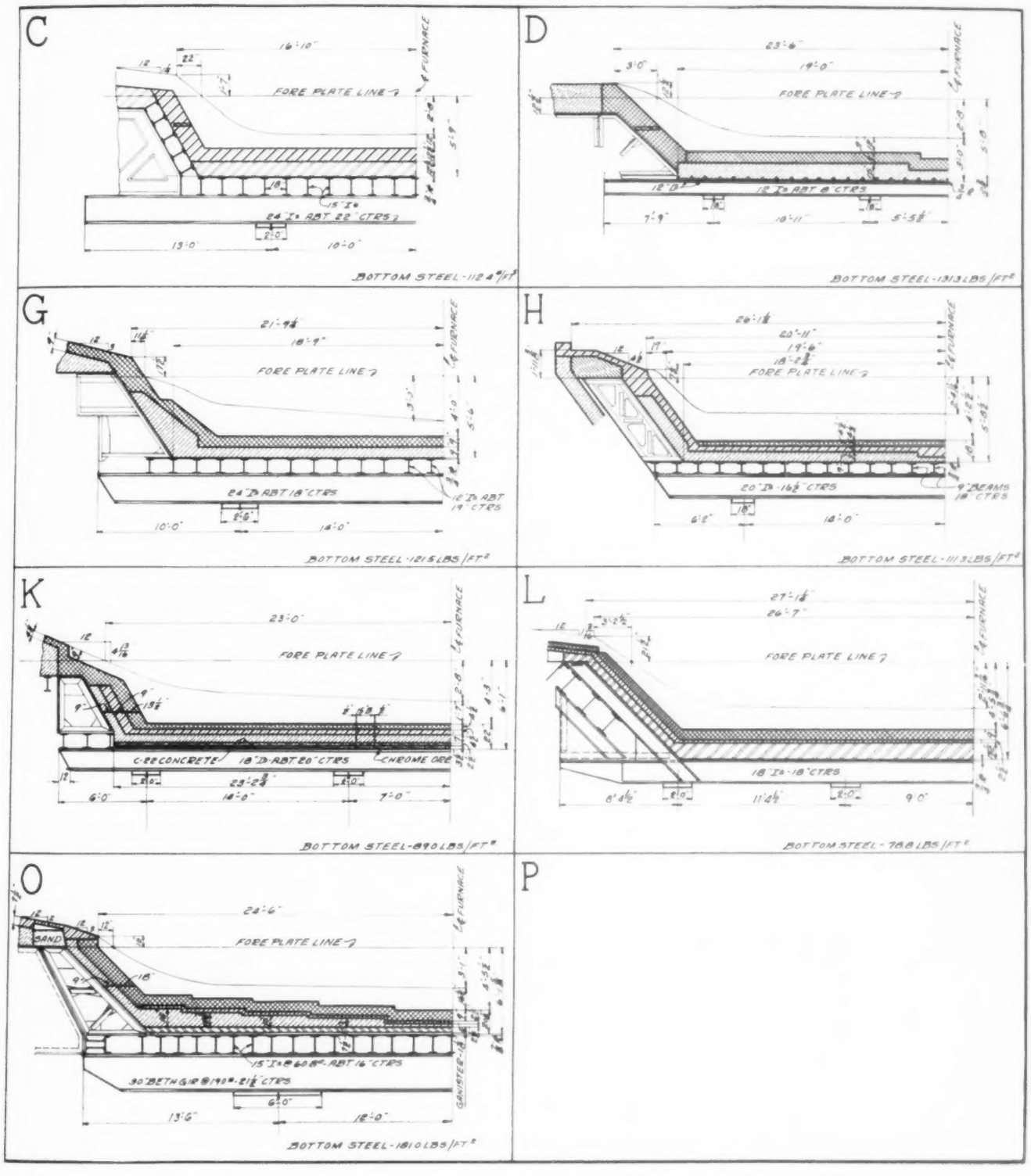


Fig. 1—Partial sections of basic open-hearth bottoms on longitudinal center lines of units

its greatest depth at the center to its least depth at the ends and sides, as shown in Fig. 1, the quantity of refractory material is increased to meet the raising contour of the bath. Under these conditions the average cost of the bottom refractory material will be at least 50 per cent higher than the values given, while the flow of heat through, and the outer temperatures of the bottom, will be progressively less as the depth of refractory increases. The superimposed load on the bottom supporting structure, therefore, is smaller as the depth of bath decreases. It has seemed advisable to consider the furnace bottoms at their weakest points, or at the center of the hearth rather than under an average.

Except under unusual circumstances the bottom of an open-hearth furnace seldom is rebuilt completely. Since its thermal qualities are of prime importance to its economical and satisfactory operation during the entire furnace life, a careful study should be made of design prior to construction. As will be shown, the construction of the bottom differs for each furnace and the construction cost and heat-resisting qualities vary through limits so wide as to usually indicate the designer's lack of conception of the problems that are involved.

The study of the refractories of furnace bottoms is general in its



selected from various steelworks in this country and representing typical American bottom design

Table II

Cost of Bottom Refractories

Bottom	Foreplate line to bottom steel, inches	Depth of metal and slag, inches	BOTTOM MAKE-UP: Ground magnesite Depth, inches	Ground magnesite Cost, $ sq. ft.	Magnesite brick Depth, inches	Magnesite brick Cost, $ sq. ft.	Chrome brick Depth, inches	Chrome brick Cost, $ sq. ft.	Fire brick Depth, inches	Fire brick Cost, $ sq. ft.	Miscellaneous material Depth, inches	Miscellaneous material Cost, $ sq. ft.	TOTAL Depth, inches	TOTAL Cost, $ sq. ft.
A	69½	33	17	6.98	9½	5.24	2½	1.03	7½	0.96	.....	.....	36½	14.21
C	69	32	12	4.93	.....	.....	12½	5.14	12½	1.51	.....	.....	37	11.58
D	68	32	17	6.98	.....	.....	9	4.97	10	1.21	.....	.....	36	13.16
E	65½	33	10	4.11	9	5.05	.....	.....	13½	1.63	.....	.....	32½	10.79
F	75	38	19½	8.00	4½	2.53	4½	1.85	7½	0.91	*1	0.05	37	13.34
G	66	36	12	4.93	9	5.05	.....	.....	9	1.09	.....	.....	30	11.07
H	68½	29	21½	8.83	4½	2.53	9	3.70	4½	0.55	.....	.....	38½	15.61
I	72	36	11	4.52	9	5.05	2½	1.03	13½	1.63	.....	.....	36	12.23
J	77	33	24½	10.10	†6	2.47	.....	.....	11½	1.39	‡2	0.37	44	14.33
K	73	32	19	7.80	4½	2.53	4½	1.85	7	0.85	¶2½	0.46		
											§3½	0.18	41	13.67
L	79	36	18	7.90	9	5.05	2½	1.03	13½	1.63	.....	.....	43	15.51
M	88½	48	20	8.21	9	5.05	.....	.....	11½	1.39	.....	.....	40½	14.65
N, O	73⅝	37	16½	6.78	9	5.05	2½	1.03	7½	0.91	‖1⅛	0.06	36⅝	13.83
Q	.....	....	11	4.52	9	5.05	6	2.47	11½	1.39	.....	.....	37½	13.43
R	.....	....	11	4.52	9	5.05	6	2.47	11½	1.39	‡2	0.37	39½	13.80
S	.....	....	12	4.93	.....	.....	12	4.93	15	1.82	.....	.....	39	11.68
T	.....	....	12	4.93	.....	.....	12	4.93	12½	1.51	‡2½	0.46	39	11.83
U	.....	....	12	4.93	.....	.....	12	4.93	20	2.42	.....	.....	44	12.28
V	.....	....	13	5.34	12	6.63	.....	.....	60	7.25	.....	.....	85	19.22

(*) Loam. (†) Ground magnesite and cement. (‡) Insulating material. (¶) Insulating concrete. (§) Chrome ore. (‖) Ganister.

scope inasmuch as the conditions are about the same irrespective of the furnace size, temperature and heat flow.

Details of the method in which the hearths of furnaces A to P are made up, as presented in Table II, are from the data of Fig. 1, and these, in turn, are taken from the original reference drawings. The make-up of hearths Q to V are taken from an article* in which the refractory thicknesses only are given. The dimensions of thickness are at the center of the hearth, and, therefore, represent the minimum thickness of the refractories and the maximum depth of the bath.

It must be borne in mind that the actual thickness and the contour of the grain magnesite will vary considerably due to the fact that this portion of the bottom is developed by crude methods while the furnaces are under heat, and to the necessity of patching or repairing the bottoms between heats. The figures given as the thickness of the grain magnesite represents the designer's ideas

(*Please turn to Page* 30)

*"Modern Trends in Open Hearth Operations," by L. F. Reinartz, *Blast Furnace & Steel Plant*, page 53, January, 1932.

Table III

Cost of Refractory Materials

Ground magnesite	$4.93
Ground magnesite and cement	4.93
Magnesite brick	6.63
Chrome brick	4.93
Firebrick, 1st quality	1.45
Firebrick, 2nd quality	1.28
Silica brick	1.45
Insulating material	2.21
Sand, loam, ore, ganister	0.60

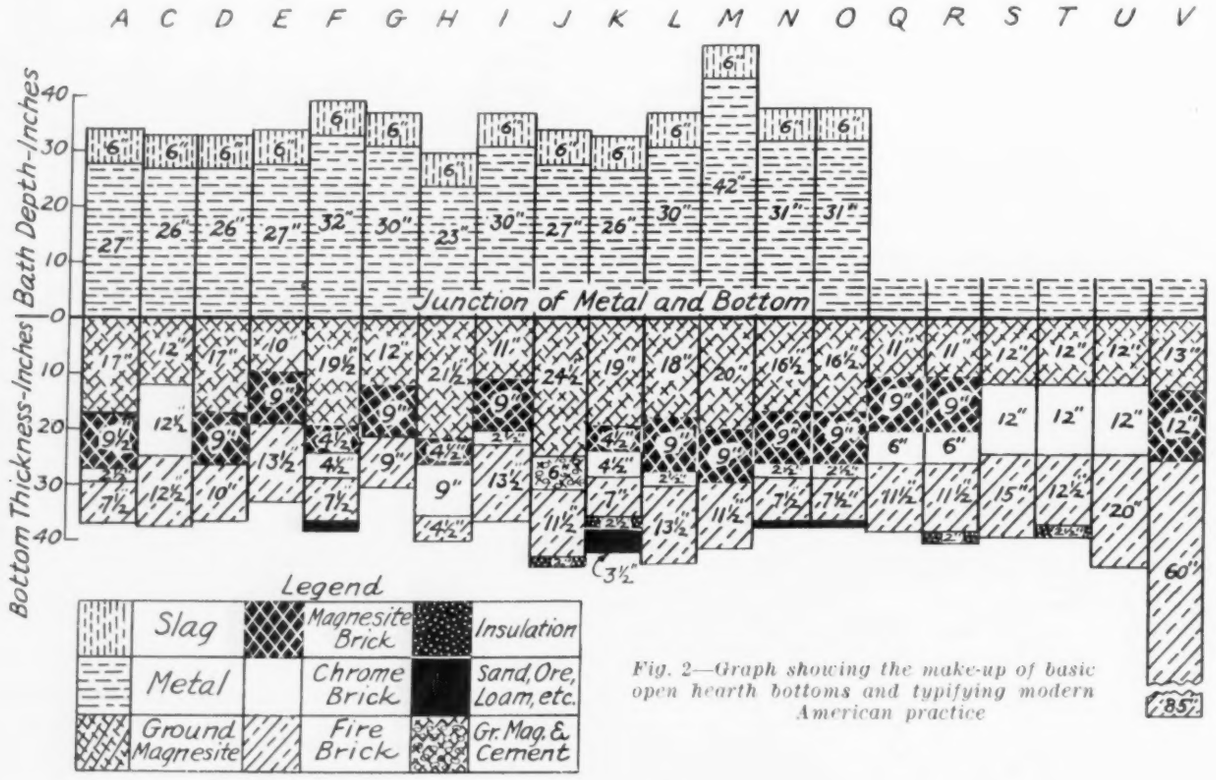


Fig. 2—Graph showing the make-up of basic open hearth bottoms and typifying modern American practice

Instrument Gives Record of Machine Production Time

IDLE time analysis has constituted one of the major problems of the machine age, particularly since the advent of high production units. Management has long felt the need for an accurate instrument to establish better production control. With these conditions persisting and the time ripe for a unit which would, among other things, record idle time, thereby providing a solution, National Acme Co., Cleveland has developed the "chronolog," which it will manufacture, for Graybar Electric Co., the sales medium.

Claimed to be the solution to the problem of decreasing idle time on machinery and processes, this device, shown in Fig. 1, was invented by Max L. Jeffrey, a superintendent in the National Acme plant 1928-29, and previously assistant production manager in charge of manufacturing at White Motor Co., Cleveland. The inventor realized the necessity for such an instrument through his close association with production control.

The new device provides the operator throughout the day with a visible record, of idle time in minutes that has accumulated during his run; of productive time; and of the count of units produced, whether they are feet of paper, yards of cloth, cans of paint, or pieces produced by a machine tool. It can be applied to steel mill equipment or packaging machines, being practically universal in application. In Fig. 2 the "chronolog" is shown in use on a press for castellating nut blanks.

Instrument Prints Detailed Record

In addition to keeping the operator constantly informed, the instrument presents to the foreman or superintendent a detailed printed record, called the "chronorecord." This reveals precisely when an interruption occurred, why it occurred, and how long it delayed normal production. The instrument also will produce any desired number of "chronocards" on which are summarized the total idle time, total productive time, and units produced. These cards may be routed to the timekeeper, time study and production departments.

With this explicit data available, everyone concerned is informed of the nature of the various interruptions and definite steps can be taken to reduce the loss. The data are available long before the usual cost figures can be compiled, and enable the management to improve the situation during the run instead of waiting for a post mortem when the work is completed.

The instrument is mounted on or beside the machine within the operator's reach. When he gets to the machine in the morning he puts his

Fig. 1—The new instrument to record production performance of machines

key into a slot in the device and turns the switch to "on." The instrument immediately prints the time to the minute, and records the fact that the indicators have been reset properly to zero.

From that time on, without further attention, the device prints at fixed intervals, recording the clock time, the cause for idle time if the machine is idle, the accumulated idle time, the accumulated production time, and the total pieces produced to that minute. By a simple adjustment within the instrument the printing intervals can be adjusted to 5, 10, 15 to 30 minutes to suit the requirements of the work.

Indicators easily are visible to the operator and he can glance at them from time to time to see how the idle minutes and productive minutes compare. As this gives him a definite idea of his earnings, these indicators are of great value in drawing his attention to an unsatisfactory showing during the working day.

The instrument is energized by the ordinary lighting circuit and can be installed quickly. Whenever the machine or equipment is shut down for any cause such as "down for stock," "inspection," "repair," "tool grinding," "cleaning," "set up," etc., the operator registers that cause by dialing the symbol letter corresponding with the reason for shutdown indicated on the symbol chart attached to the instrument.

Signal Light Indicates Idle Unit

A red light goes on to advise the foremen or other supervisor that the machine or equipment is not producing, thus permitting that immediate steps to be taken to correct the difficulty. The device records the gradually accumulating total of idle time until normal production is resumed, when it automatically stops counting idle time and resumes the count of productive minutes and units produced.

The "chronorecord" also indicates to the minute the time the operator actually starts and stops his work, and the arrival and departure of foreman, supervisor, inspector, machine repair man, stock man or electrician, thus recording the activity of those who have a definite influence on the output of the equipment, but who are not under the operator's control.

Installation of the device on various types of production machines and equipment during the past year, has indicated that productive activ-

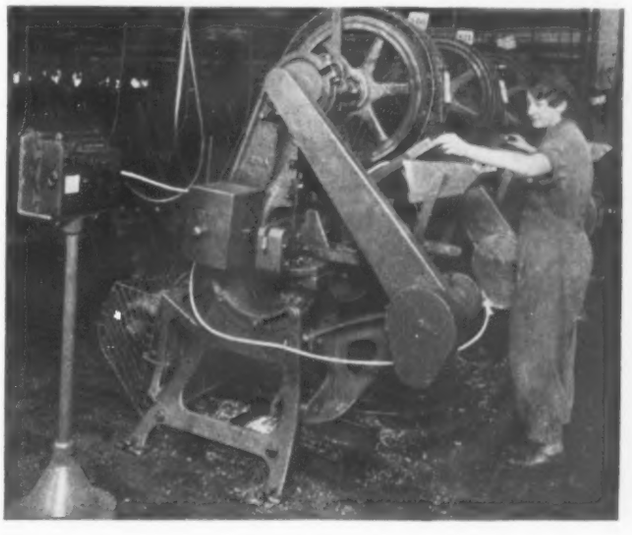


Fig. 2—Installation of the time recording device on a press for castellating nut blanks. Where conditions do not permit mounting the instrument conveniently on the machine a pedestal such as shown at the left in the illustration is provided

ity may be increased from 20 to 83 per cent, production costs reduced, and earnings of operators increased in proportion. These results naturally are reflected in manufacturing costs and earnings statements and therefore, have a significant bearing upon production policy.

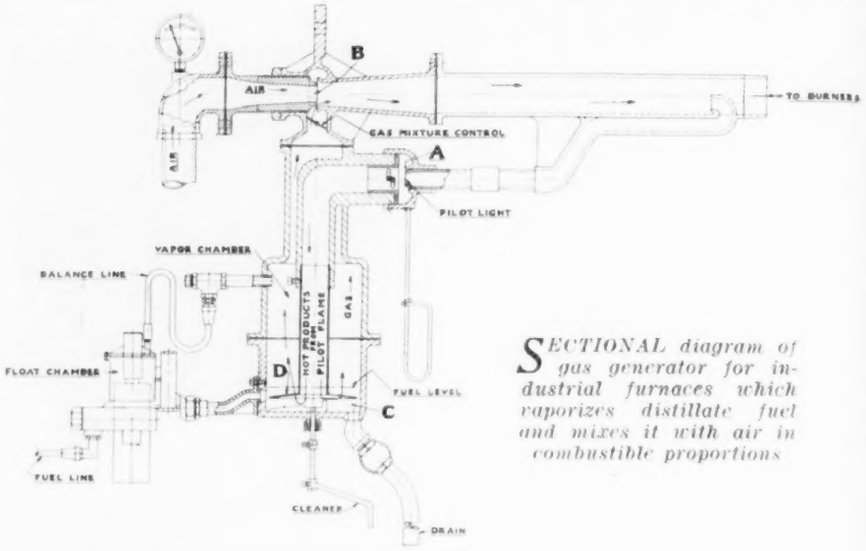
Generator Vaporizes Oil Fuel for Industrial Furnace Operation

INTERESTING results are being obtained from operation of a new gas generator introduced in a number of industries a short time ago. This device, which might be termed an industrial carburetor, is used to change a standard distillate fuel from its liquid form to its gaseous state and to mix hydrocarbon gas with air in combustible proportions. It is manufactured by the Railway Locomotor Co., Chicago, a division of the Ryan Car Co., and is known as the Vapofier.

The device has found successful application in various phases of steel treating and also is being employed for core baking, metal reduction, enameling, japanning, forging, copper annealing, rivet heating, die casting and other heat processes. It also is being employed in the food product field. Economy of operation and absence of dirt, soot or odor in combustion of the vapor gas are the principal features of the unit.

When used in steel treating, satisfactory results are reported by operators. Orsat meter readings showing furnace atmospheres with a CO_2 content of 14 per cent and better easily can be maintained, it is stated, and, because of the efficiency in combustion, an improvement in the work is recorded through lessening of such undesirable features as shrinkage, distortion and scale formation. Savings in fuel costs of 50 per cent and higher in comparison with other gaseous types are reported.

The generator is simple in its operation and is comparatively small, requiring floor space of only about 20 x 20 inches. The accompanying sectional diagram illustrates the principles of operation. Products of combustion from a preheating or pilot light are carried through a reservoir of fuel in the generator bowl, which is maintained at a constant level by a float valve. Heat from these products of combustion is imparted to the fuel in vaporizing it, and the oil vapor then is carried to the mixing chamber where it is diluted with air in combustible proportions. From the mixing chamber this mixture is carried through manifolding to the burners, although a slight portion is taken from the manifold to maintain the pilot light. The impelling force necessary to accomplish the gas flow through the generator is the result of the suction created by the venturi or inspirator construction of the mixing nozzle.

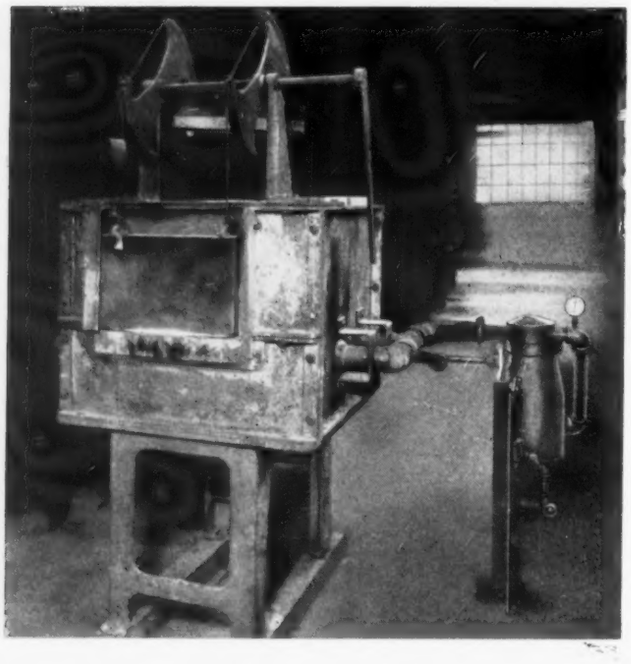


SECTIONAL diagram of gas generator for industrial furnaces which vaporizes distillate fuel and mixes it with air in combustible proportions

Selection of the type of flame generated at the burner is accomplished by operation of the gas mixture control valve which varies the ratio of oil vapor and air. A neutral, reducing or oxidizing flame can be produced as desired. Furnace temperature is governed by operation of a valve, manual or automatic, placed in the main air line. Air pressure of only 10 to 16 ounces is required. When the unit first is started the initial heat is supplied by a torch, this operation taking but a few minutes. The device has been listed as standard by the Underwriters Laboratories.

The following data were obtained by a producer of high-speed steel in a heat treating operation. Heating was started at room temperature and working temperature of 2350 degrees Fahr. was maintained:

Time to reach temperature	1 hr. 49 min.
Fuel cost to reach temperature	$0.366
Fuel cost to mainain temperature one hour	$0.138
Heat required to maintain temperature one hour	322,000 B.t.u.



TYPICAL high-speed steel furnace operating at 2000-2400 degrees Fahr., with gas generator attached at right

New Product Development Is Industry's Hope for Future

IN INCREASED consumption of products falling within convenience and luxury classifications lies the greatest hope for the future, stated Dr. Zay Jeffries, consulting metallurgist, Aluminum Co. of America, Cleveland, at the two-day new products conference, arranged by the Cleveland Engineering society, Sept. 28-29. Manufactured products comprise three classes, namely, necessity, convenience and luxury; necessity products account for only 15 per cent of the total, whereas convenience and luxury products make up 85 per cent of the aggregate. It is but natural, therefore, that the larger group should offer the greater opportunity.

The ability and desire to consume is the measuring stick of all products, according to Dr. Jeffries, thus in the invention and development of new products it is impossible to determine in advance whether new creations will become commercial products. This may be regarded as a hopeful condition, however.

Potentialities Are High

To give some idea as to the opportunity for new products, the speaker pointed out that if the rest of the world should bring its consumption of metals to somewhere near the per capita figures for the United States, it would be necessary to scratch the surface of the earth to obtain sufficient mineral supplies and the metal industries would be multipled in size by five or six.

In introducing new products, it is necessary for a manufacturer to use the past as a guide to ascertain their probable acceptance, although even this is uncertain. Because of keen competition and the rapidity with which change is effected today, obsolescence may come quickly. Dr. Jeffries predicted that the time during which any product enjoys popularity is becoming increasingly shorter.

The manufacturer who purchases parts from outside producers is afforded the greatest flexibility in the use of materials for changes in product can be made without making previous equipment idle when discarding a former material and without adding new equipment for fabricating a new material. At the same time, a parts supplier serving a wide number of manufacturers is in an advantageous position to balance his production as specifications shift from one material to another.

Dr. Jeffries emphasized that any company not keeping up in product development is riding for a fall, because changing demands soon bring obsolescence. Continuous development is necessary to provide some assurance against outside competition.

In concluding he said that the wildest idea in the way of a new product or the design of an old product might prove a commercial success. Nothing short of a service test will determine the value of a product.

The new products conference was opened formally with an address by Frederick M. Feiker, director, bureau of foreign and domestic commerce, Washington, who discussed the present business situation and said that it calls for imagination to apply the engineering, manufacturing and sales machinery of the country to the adjustment of business to present marketing conditions.

Many new products have been developed during this depression and many products heretofore developed have been found of practical use during the past few years, said Mr. Feiker. He pointed to a survey of the National Research council which indicated that nearly half of the reporting companies spent more on research in 1931 than in 1929, a clear demonstration of the value placed in the days of falling sales on improvement of old products and processes and the finding of new ones.

Markets Often Exhausted

Time after time in the history of American industry, stated Mr. Feiker, has an establishment turned out a product which proved so good and so efficient that it ultimately exhausted its own market. It eliminated the need for replacement. Case after case of this kind has resulted in the development of new and diverse products to make use of available production capacity. In other industries the availability of large quantities of scrap material has forced new products into existence.

Speaking on the subject of marketing the new product, Gordon Armstrong, Youngstown Pressed Steel Co., Warren, O., declared that ingenuity of engineers will pull America and also the world out of the depression. This ingenuity was responsible for the thousands of products which have made the United States the world's leading manufacturing country, and it will again come to the fore. According to the speaker, products sell best when merchandised with a certain amount of dramatization, for the world succumbs to dramatization.

D. G. Smellie, director of development and design, Hoover Co., North Canton, O., outlined practical steps in product development and placed the problem of new products upon industrial management. "An engineering department is a company's best insurance of having products for future markets," he said. "A development engineer will in all likelihood be much closer to possibilities of a new product than any other man on the staff. It is up to management to provide and correlate engineering efforts."

Ten speakers participated in the four sessions of the new products conference, one session being devoted to research, one to development and marketing and two to products. About 100 attended the conference. Market research, and merchandising proved to be popular topics.

Bulletin Provides Safety Instruction

CONVINCED that accident prevention can be accomplished best through active interest and leadership of foremen, the Policyholders Service bureau of the Metropolitan Life Insurance Co., 1 Madison avenue, New York, has issued a new publication, "Foremen's Safety Conferences," which presents one method being used rather extensively to develop safety interest among those in supervisory positions.

This report of 24 pages offers suggested programs for a series of seven informal conferences to discuss various phases of safety work, these meetings to be presided over by some representative of the management. The programs, which are confined to the fundamental principles of safety work as applied to all types of industry, were developed following a review of the activities of a number of industrial organizations in the United States.

To provoke general discussions, a series of nine questions is presented for each of the seven conferences. The purpose of each question is given briefly and this is followed by a condensed statement giving general information on the subject for the purpose of suggesting additional questions. The subjects included in the program are: Reasons for safety work; using facts to prevent accidents; getting new employes started right; helping the accident-prone employe; getting the department behind the foreman; value of safeguarding equipment; and effect of

good housekeeping on safety and operation.

A limited number of copies of the publication are available for distribution to manufacturing executives, safety engineers and other interested in this phase of accident prevention upon request to the Metropolitan Life Insurance Co.

Bridge Plaques of Stainless Steel

STAINLESS steel is to be used for the plaques with which the American Institute of Steel Construction will designate the three bridges judged to be the most beautiful erected in the United States and Canada during the past year. Inasmuch as these bridges are of steel and represent the highest type of bridge esthetics, it was considered most appropriate to have the plaques made of stainless steel, a material of unchanging and permanent characteristics.

The plaques have been donated by the General Alloys Co., Boston, and represent the newest architectural and sculptural developments. They will be of the same general design as those used in previous bridge awards, but the type of decoration will be new.

Coated with Colored Glass

The General Alloys Co. has developed what is known as KloiZenay, a colored glass poured on the casting so that the silica of the glass fuses with the metal. The stainless steel is previously heated to 2400 degrees Fahr. so that it is plastic when the glass is poured on its surface. By this method it is possible to obtain a general background of rich royal blue for the lettering. The seal of the institute will have a center background of red with a border background of black. The lettering and seal will be in relief and highly polished. The colored glass is said to be immune to cracking or crazing and colors are permanent.

Plaques will be placed at the ends of each of the prize-winning bridges, namely, the Kill van Kull bridge, Bayonne, N. J.; Waldo-Hancock bridge over the Penobscot river, Bucksport, Me.; and the highway bridge spanning the Connecticut river, West Stewartstown, N. H. These three bridges have been judged the most beautiful in their class to have been erected during the past calendar year (STEEL, June 20, 1932, page 11).

It is planned to hold the ceremonies for unveiling these plaques some time in October.

Improving Open-Hearth Furnace Design

(*Concluded from page* 26)

of the thickness of this material required or desirable.

Throughout this work, the bath is considered as consisting of a 6-inch covering of slag having its top surface level with the foreplate line and molten metal between the slag and the top surface of the ground magnesite.

Molten metal at about 430 pounds per cubic foot is assumed to occupy the space between the slag covering and the ground magnesite after the conclusion of the lime boil. During the lime boil and using a high scrap charge, the volume of the bath will be increased by perhaps 50 per cent, while if a high ore charge is used the bath volume may increase as much as 150 per cent. This increase in bath volume is the principal reason for damming the door sills after charging is finished.

The details of the make-up of the bottoms and the square foot cost are given in Table II. In calculating this table all firebrick is considered as first quality, although a few designers have indicated the use of second quality in part.

The cost values of Table III are based on average 1932 prices and are computed to represent the cost of 1 square foot of the material, 1 foot thick in place in the furnace bottom.

The make-up of the various bottons given in Table II is shown graphically in Fig. 2. An examination of these indicates most clearly the divergence of ideas on bottom construction. The thickness of ground magnesite varies from 10 to 24½ inches; magnesite brick and/or chrome brick varies from 9 to 15 inches and the firebrick from 4½ to 20 inches (in one extreme case 60 inches). The variance between the limits of the first and last items are unreasonably great.

(*To be continued*)

Announces New Refractory Suitable for Molding

A new type of refractory claimed to have great flexibility of application has been added to the line of refractory cements and plastics of the Quigley Co. Inc., 56 West Forty-fifth street, New York. This new product, tradenamed Gas-Refract, can be cast or molded on the job into any desired shape or form. Having a quick air set with high structural strength it can be put under full heat within 24 hours or less if necessary, it is stated.

Ease and economy of application are claimed as outstanding features. The material is shipped dry and mixed with water on the job to bring it to a stiff mortar consistency. It is then handled much like a concrete mixture.

According to the manufacturer, this refractory is especially adapted for casting special shapes, boiler furnace and coke oven door linings, and for other more or less intricate construction. It produces a monolithic structure which is air and gas tight, free from shrinkage, highly resistant to spalling and with good refractory properties up to its temperature limit of 2600 to 2800 degrees Fahr.

Jobless Engineers Spend Time in Library Work

Unemployed engineers spend their time in working out hunches which have occurred to them during busier days, according to H. W. Graver, director of the Engineering Societies library, New York, who observed that attendance at the library last year showed a 10 per cent increase.

"It is significant that most men are coming here with a definite purpose in view," says Mr. Graver. "The proportion of our readers engaged in technical research, in the true sense of the expression, appears greater now than it ever has been.

"The majority appear to be working out hunches they received in the course of their work in the past, when they were too busy to do any research. Every technical man gets these hunches at one time or another, but unless his job happens to be research he is not likely to get a chance to work them out."

Stock for Razor Blades Is Die Tempered

In describing a recent interesting installation for temper drawing steel razor blade stock on Page 27 of Sept. 26 issue of STEEL, mention that the equipment was developed by the American Gas Furnace Co., Elizabeth, N. J., was omitted inadvertently. Subsequent to hardening, the stock passes through tempering dies through which is circulated heated oil from a gas-fired tank unit.

Temperature of the oil is controlled automatically and possibilities of overshooting or over-running the desired temper drawing temperature are said to be practically eliminated. The oil is maintained at some temperature between 300 and 450 degrees Fahr. as required.

"Best Wheels We Ever Had for Centerless Grinding."

That's the Statement in Report after Report

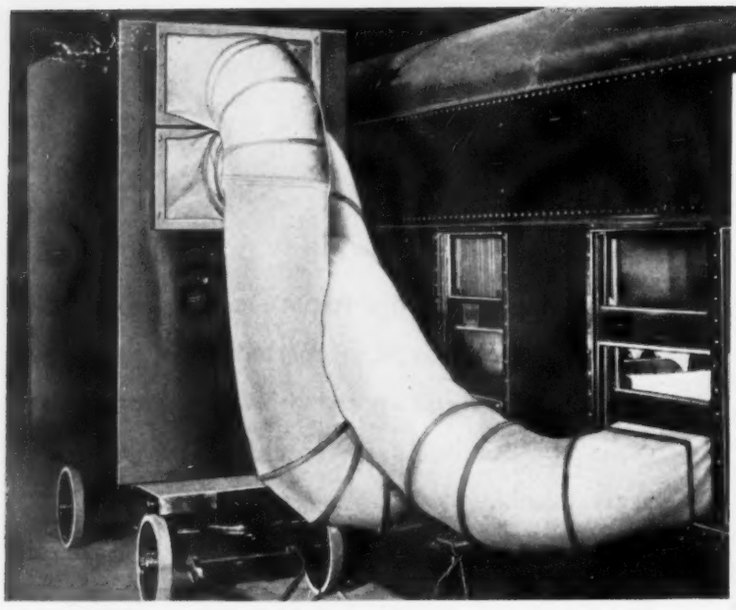
IT'S what grinding room foremen and production superintendents in many plants are saying — men who are interested only in results . . . in lower costs from their machines. They are saying it because in competitive tests in their own shop Norton wheels are actually lowering centerless grinding costs — by faster production, better finish, longer life, fewer dressings — and no duplication difficulties . . . the same grinding action in wheel after wheel.

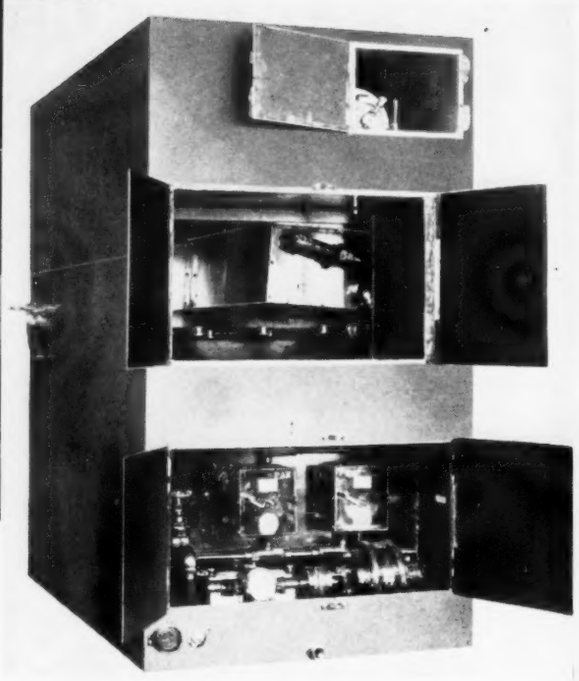
NORTON COMPANY
Worcester, Mass.

W-428

Largely responsible for the success of Norton wheels for centerless grinding are Controlled Structure and "B" Bond. A description of their features is available. Write for a copy — no obligation.

NORTON GRINDING WHEELS





Photos, Courtesy, Carrier Engineering Corp., Newark, N. J.

A railroad passenger car pre-cooler in action, and at the right, how the interior mechanism appears. Warm air is withdrawn from the car through one of the canvas ducts, passed through an ice-water spray, and forced back into the car

Large Uses of Steel In Small Ways

227th Article ◆ Railroad Car Pre-coolers

A RELATIVELY new use for steel is equipment for pre-cooling railroad passenger cars. Pre-coolers were used experimentally in 1930, but it was not until last year that they were placed on the market. By the close of the past summer about 500 were in operation, 350 to 400 of which were probably manufactured and sold this year. There are several types, but it appears that the average unit requires about 1500 pounds of steel and iron; hence, an estimate of about 260 to 300 tons of this material for those built so far this year.

By far the major steel item is cold rolled sheets, which go into the shell and general structure of the unit. In addition, some steel piping is required and some ferrous metal for the motors, their bases, hinges and certain other parts.

While it is believed the increasing installation of air-conditioned cars by the railroads will adversely affect the market for pre-coolers, once the railroads achieve substantially better financial position, manufacturers of this latter equipment are confident there will be an outlet for pre-coolers for a long time. This summer, incidentally, it appears that the unfavorable financial status of the carriers, combined with highly competitive conditions confronting them, stimulated the market for pre-coolers.

Packed with Ice

The accompanying illustration shows one type which weighs 2000 pounds, not including truck, and of this weight possibly 1500 pounds are of 12 gage cold-rolled steel, fabricated and assembled at the manufacturer's plant. The unit is 6 feet, 1¼ inches high; 7 feet, 6 inches long; and 3 feet, 5¾ inches wide. It is insulated with cork board and composition material. It has a capacity for 1000 pounds of ice and is equipped with one ¾-horsepower fan motor, one ½-horsepower pump motor and 100 feet of electric cable. The unit is mounted on a low truck for conveyance from one car to another.

Air is cooled by passage through a spray which is formed of cold water from melting ice, and then over a cooling coil. Two flexible canvas ducts connect the cooling unit to the car. One withdraws the heated air, passes it through the cooler and the other returns it to the car, clean and cool. A special distributing nozzle on the end of the supply duct sets up a positive circulation in the car.

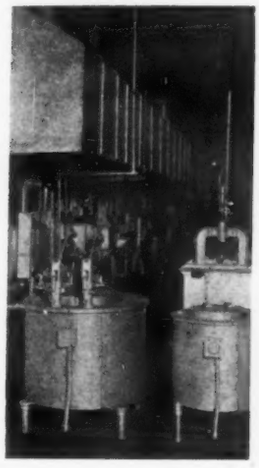
A 30-gallon pump draws the water from the bottom of the ice-melting tank, forces it through the coil, then sprays it over the ice to increase the rate of melting. Under average conditions, cooling, which will reduce the car temperature several degrees, may be had in approximately one half hour. Sometimes an hour and a half to two hours are required to reduce the car temperature to the desired point. The operating cost of ice and power is said to vary from $1.50 to $2 a car.

While the primary use of the equipment is for pre-cooling railroad passenger cars, it also finds application in the cooling of waiting rooms, restaurants, lunch counters and restrooms.

Steel Construction Group To Meet in Pittsburgh

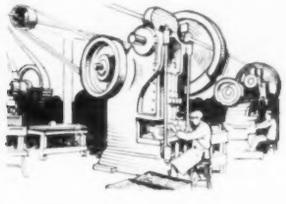
The American Institute of Steel Construction announces that its tenth annual convention will be held in Pittsburgh, Oct. 20-21. Headquarters will be at the Schenley hotel. The meeting will be confined strictly to problems of the industry and sessions will be devoted entirely to the industry's representatives. No outside speakers will appear on the program.

Making the Most of



METHODS AND MATERIALS

A SURVEY in a manufacturing plant showed that more than 1100 different pins were used for securing cams on shafts of machinery built by the company. In the same plant, the cost of setting up a tool to make small parts of this kind was $3 to $6, which gives a clear picture of the direct loss suffered through lack of standardization. The loss through confusion, lack of interchangeability and excessive stock evidently was considerable also. The standardization of wood screws, resulting in a reduction in variety of 50 per cent, gave a saving as high as $4000 per year, although the plant was engaged in metalworking. Furthermore, the company saved another $7500 annually by standardizing its office forms.



IN SPITE of built-in safety features, power presses sometimes repeat and for very unusual reasons. One such incident occurred recently in a Michigan plant. A tote box on the floor at the rear of a press was pushed along by a workman just at the right time to catch under the overhanging rear end of the cast-iron foot treadle, holding the treadle in its down position and causing the press to repeat. Accidents of this kind usually cause operators to lose fingers or hands.

S S S

Cost of chromium plating is due only in small degree to the cost of the metal deposited, but instead to the low current efficiency, some 15 per cent. About 15 times as much current is required to deposit a given thickness of chromium as nickel. Decorative coatings are so thin, however, that current costs less than 0.25 cent per square foot. Cost of depositing a suitable nickel base coating for reception of a chromium coat is higher than when nickel is to be used uncoated as a better deposit is required. The cost of polishing is greater than the plating cost.

S S S

A new electrode holder stand which automatically shuts down the welder 1 minute after the holder is placed on the stand and instantly starts the machine when the holder is removed is now on the market. The principal advantage, according to the manufacturer, is saving in power. Placing the holder on the stand depresses a hook which activates a timing device to disconnect the welder from the power supply line. The stand is of arc welded steel construction and is portable.

S S S

A new use for tin in the automotive industry has appeared within the last year. Some manufacturers are plating cast-iron pistons with this metal to reduce the friction between the piston and cylinder wall. The coating, of course, is very thin, ranging from 0.0005 to 0.001 inch. The plating process is not difficult and recent developments in tin solutions have facilitated work along these lines.

S S S

In drilling hot-rolled manganese steel bars, rifle barrel blanks, caliber .30, a single lip drill 0.293 inches in diameter is generally used and machinability of the stock, rolled and heat treated, should allow a rate of 1 inch per minute. Blanks are 24⅛ inches long and not less than four blanks must be drilled without regrinding the drill which operates at 2150 revolutions per minute. After heat treating and before boring or drilling this stock must meet the following specifications: Yield point, 75,000 pounds per square inch; ultimate strength, 110,000 pounds per square inch; elongation, 20 per cent in 2 inches; reduction of area, 50 per cent; brinell, 228-256. Such bars are generally heat treated at the armory or shop making the rifle. Diameter of the rough bars, which generally come in 12-foot lengths, is 1.375 inches.

S S S

Sound absorbing material often may be used to advantage in solving a problem of noise reduction, either by its introduction inside the housing of a machine or by its use on the surfaces of the room where the machine is installed.

A MANUFACTURER of electrical equipment is building a dustproof motor having its inclosure and corrugated heat-radiating surface made of stainless steel sheet which is highly resistant to corrosion and insures maintenance of heat dissipating capacity under adverse operating conditions. Otherwise, the motor is constructed the same as the regular dustproof models. Its installation is recommended wherever dust or dirt, moisture or fumes are present in sufficient quantities to clog an open type motor or to abrade or corrode its windings and bearings.

S S S

The electric solenoid is used by a manufacturer of valves for steam lines in a power control valve. The valve is set slightly below the spring loaded safety valve and is used to increase the efficiency of the steam generating plant. This is accomplished since the range of pressure between opening and closing of the valve can be held to a low percentage of that required for the opening and closing of a spring loaded valve. The solenoid which operates this valve is actuated by a sensitive pressure regulating system which closes the circuit to the solenoid at the time the desired pressure limit is reached, and opens the circuit when pressure drops about 1 per cent.

WELLMAN *Revolving* CAR DUMPERS

The first dumpers of this type provided with automatic gravity clamps . . . The only dumpers having clamp guides located on the side away from the material, a construction that avoids clogging of the guides and sticking clamps which cause serious delays . . . The dumping side has no operating parts—nothing to obstruct the free flow of material. *Write for bulletin.*

WELLMAN PRODUCTS INCLUDE :

Blast Furnace Skip Hoists
Car Dumpers, all types
Charging Machines and Manipulators
Coke Oven Machinery
Gas Producers, Flues, etc.
Gas Reversing Valves
Mining Machinery
Port and Terminal Equipment
Safety Stops for Traveling Structures
Special Cranes
Steel and Tube Mill Equipment
Williams Buckets and Trailers
Castings and Machine Work to Customers' drawings

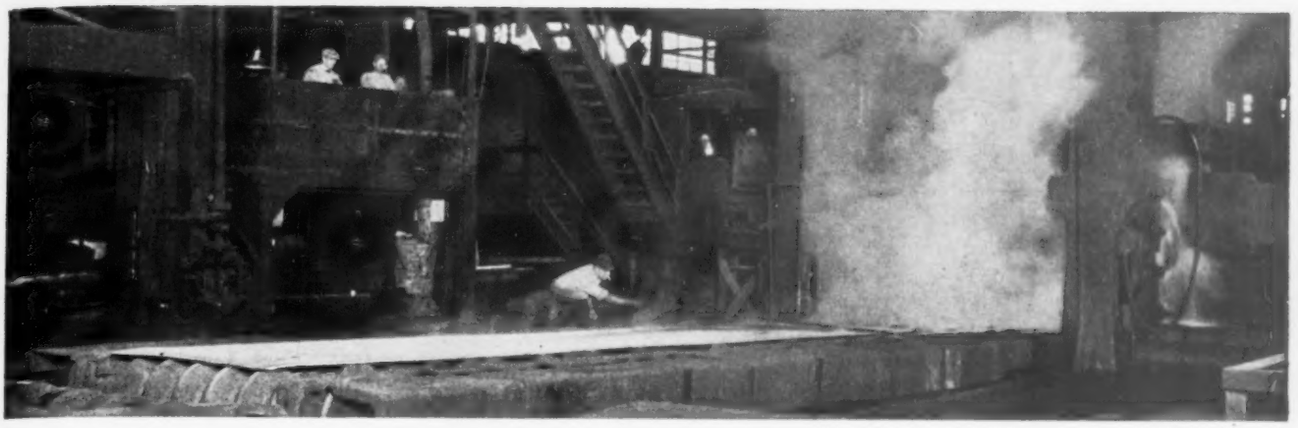
THE WELLMAN ENGINEERING CO.

ENGINEERS CONSTRUCTORS MANUFACTURERS

CLEVELAND, OHIO

WELLMAN

BIRMINGHAM • NEW YORK • MEXICO



PROGRESS IN STEELMAKING

UNIFORM hot blast temperature at all tuyeres and protection of hot blast valves and seats against excessive temperatures have been obtained at a stack in Ohio by the installation of a mixer main through which cold blast is passed into the combustion chambers of the stoves ahead of the hot blast valves. The auxiliary main is equipped with a butterfly regulator valve which automatically controls the temperature of the heated blast within close limits.

♦ ♦ ♦

Recent introduction of a quickly attached steel frame bar has simplified the assembly of expanded metal sheets for use as guards for moving parts, automatic stokers, circuit breaker protectors and store room partitions at steel plants.

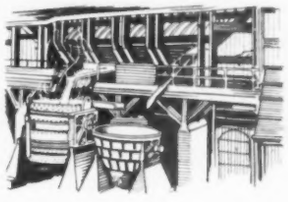
♦ ♦ ♦

Anhydrous lime base grease highly resistant to water flooded under hydraulic pressure on heavy-duty roll necks is a recent development in general mill lubrication. The new grease is suitable for mechanical lubricating systems and will not break down or separate under roll pressures within its limit.

CHEMICAL determinations of basic open-hearth steel made from test samples killed in the spoon show a difference as high as four points in the carbon percentage, according to tests made at a shop in the Pittsburgh district. Of two samples taken from the same heat, the one killed with aluminum analyzed 0.075 per cent carbon and the drillings from the unkilled sample, 0.055 per cent carbon.

♦ ♦ ♦

Comparison of boiler performance on similar type boilers, using secondary rough-cleaned blast furnace gas and tower wet-cleaned blast furnace gas shows that boilers using secondary dry-cleaned gas are approximately 3 to 4 per cent higher in efficiency than boilers using rough-cleaned tower-cleaned gas, owing to the lack of entrained moisture.



RESULTS of research made in Germany indicate that deoxidation of open-hearth steel with silicon and manganese is preferable to deoxidation with silicon alone. Adding the manganese to the bath before the ferrosilicon assures the formation of an iron-manganese silicate having a low-melting point.

♦ ♦ ♦

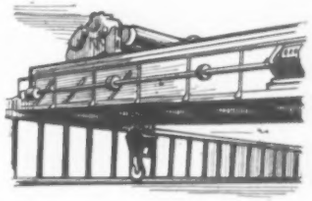
Alternating-current motors for driving sheet and tin mill roller and catcher tables have been developed with torque characteristics to afford 40 reversals a minute and with low-inertia rotors for maintaining low-reversing losses. The motors are interchangeable for conveyor or tabletilt and are provided with asbestos windings.

♦ ♦ ♦

Improvements in pickling practice are claimed to effect savings in labor, time and acid, and to produce a superior surface on drop forgings, hardware and stampings requiring a zinc coating. Pickling is accomplished in a rubber-lined drum which rotates at 6 revolutions a minute and agitates the pieces in a flowing bath of sulphuric acid of the desired strength. When pickling is completed the rotation of the drum is reversed and the work is discharged into a continuous screen container to effect drainage. The pieces then pass into a third section to be subjected to a spray of water and finally are received by a fourth section to be immersed in a fluxing solution of either hydrochloric acid or zinc chloride. The last container discharges the work on a hot plate where it is left to dry.

♦ ♦ ♦

Automatically measuring the quantity of grease forced into the bearing of rolling mill machinery is effected by a new lubrication system which embodies a pipe line arrangement. A measuring valve is located in the pipe line near the bearing and discharges a predetermined amount of lubricant at each operation of the pump handle. A pressure of 2000 pounds forces a measured shot of clean grease into each bearing and the continued pressure refills the vacuum chambers, thereby charging the measuring valves for the next discharge operation.



BRINGING overhead cranes to an abrupt stop in case of power failure has been made possible by the recent development of a dynamic braking control which operates in both directions of travel. The device also effects a quick stop of trolleys on charging machines, soaking pit cranes and ore bridges and is suitable for ore transfer and larry cars.

New Books Worth Reading

SCIENCE ◆ ECONOMICS ◆ BUSINESS

Iron, Steel Production, Tariff Rates of World

Statistics of the Iron and Steel Industries (1931), by National Federation of Iron and Steel Manufacturers, (British); paper, 201 pages, 7 x 9½ inches; published by the Federation, and supplied by STEEL, Cleveland; in Europe by Penton Publishing Co. Ltd., Caxton House, London.

This annual publication of the National Federation of Iron and Steel Manufacturers, London, contains information regarding output, materials consumed, imports and exports for 1931 and historical statistics with regard to production, foreign trade, etc., for the principal iron and steel producing countries.

The section giving import tariff duties on iron and steel products for the more important countries has been considerably extended and makes available much of this valuable information for the use of those shipping abroad.

◆

Setting a Price That Will Return a Profit

Pricing for Profit, by W. L. Churchill; cloth, 271 pages, 5½ x 8½ inches; published by the MacMillan Co.; supplied by STEEL, Cleveland, for $3 plus 15 cents postage; in Europe by Penton Publishing Co. Ltd., Caxton house, London.

Ten years devoted to a search for correctable causes of inadequate earnings and 15 years in active consulting and management service, have shown the author that profit is indispensable to progress. Starting with the premise that every transaction must be profitable to all concerned—producers, vendors, workers and customers, that we may make maximum progress, the author shows the fallacy of the vicious practice, so frequently indulged in in times of business depression, of taking unprofitable business to save overhead.

Some of the elements that control profit making, which are identified and discussed in this book, have not been segregated and understood in the past, it is felt. The author believes that these elements in most instances, indicate the existence of natural economic laws, whose violation is the cause of lack of profits and of progress by violators, regardless of their efficiency as measured by conventional business standards. It is suggested that a study of the principles disclosed may offer the thoughtful reader the idea that they involve a permanent solution to many large and pressing economic problems.

The discussion is centered around the following headings: Profit means progress; profit requirements; the law of quantity; ratio of selling to profit; pricing for profit; good will; wages, salaries and profits; obtaining correct profitable prices; synchronizing sales and production; advertising; dealer mark-ups; reducing cost and price corrections.

◆

Trading with Canada Aided by New Index

Canadian Trade Index, 1932; cloth, 869 pages, 6½ x 10 inches; published by Canadian Manufacturers' association, Toronto, Ont.; supplied by STEEL, Cleveland, for $6, plus 15 cents for postage (United States import duty about 90 cents on delivery); in Europe by Penton Publishing Co. Ltd., Caxton House, London.

Businessmen in the United States who need information on Canadian manufacture and trade will find this annual index filled with information which may be of value to them. It contains an alphabetical and classified list of over 10,000 Canadian manufacturers and their products, a survey of Canadian export trade and indicates firms interested in and prepared to do export trade.

◆

Science of Selling in These Days Explained

Principles of Marketing, by Harold H. Maynard, Walker C. Widler, and Theodore N. Beckman; cloth, 790 pages, 5 x 8 inches; published by the Ronald Press Co; supplied by STEEL, Cleveland, for $4.50, plus 15 cents postage; and in Europe by Penton Publishing Co. Ltd., Caxton house, London.

With the factor of seling occupying a leading position among the problems confronting business and industry today, this volume, prepared primarily as a text book for university students, should find wide interest among others interested in marketing. Since publication of the first edition in 1927, numerous changes have taken place in certain phases of marketing problems, so that the present revised edition contains much adidtional information as well as many worthwhile refinements in presentation.

The book is divided into five sections, the first devoted to a general discussion of marketing fundamentals, including information on marketing functions and channels, bases and kinds of sale, buying motive of ultimate consumers and factors affecting consumption.

The second part, on marketing institutions, includes, in addition to a discussion of retail institutions, wholesale institutions, and co-operative marketing institutions, a discussion of industrial marketing.

The third section relates to marketing functions, including selling, buying, transportation, storage, finance, risk, etc. The subject of prices is developed in the fourth section devoted to marketing policies. "Cost and Efficiency" is the title of the last section. To avoid the abstractness which sometimes characterizes a work of this kind, the authors have wisely included much illustrative material.

◆

Mineral Groups, Species and Varieties Classified

A Key to Mineral Groups, Species and Varieties, by Edward S. Simpson, mineralogist and analyst to the government of Western Australia; cloth, 84 pages, 6 x 9½ inches; published by Chapman & Hall Ltd., 11 Henrietta street, London.

This book meets the need of a rapid and simple means of ascertaining the composition, chief properties of diagnostic value and best source of detailed information regarding all, and more particularly the newer, mineral groups, species and varieties.

The book first gives a list of works of reference and a list of isomorphous replacements found in minerals. The key itself covers 84 pages. Under each name of mineral groups, species and varieties is a reference to previously published literature, and for each mineral the key gives the composition of the mineral, its crystalline system, its specific gravity, and the refractive index. The composition of the mineral is generally given by means of the formula.

ON ONE HAND IT'S **MATERIAL**

Tensile tests of Murex mild steel all-weld metal repeatedly show an ultimate strength of 65,000 to 70,000 lbs. per sq. inch and an elongation in 2 inches of 25 to 30%

ON THE OTHER IT'S **A TOOL**

CONSIDER your welding electrode for what it really is . . . both a material and a tool.

You know what material you want. Obviously your deposited metal must have physical properties which at least equal those of the parent metal. With Murex Heavy Mineral Coated Electrodes you get that and more. Murex provides a margin of safety... a generous plus of strength and ductility which is always good to have when inspection and service requirements are rigid.

But the tool characteristics of your electrode are also important. Murex is a precision electrode which brings a new control to welding . . . which enables you to boost the amperage without danger of undercutting, excessive spattering, porosity, or loss of ductility. Rejects are fewer, speed is higher, welding cost lower per cubic inch of deposited metal.

Murex Electrodes are made for the welding of mild steel, high carbon steel, stainless, manganese and others. A new, comprehensive booklet leaves few questions unanswered. May we send you a copy?

A MUREX ELECTRODE IS BOTH A PRECISION TOOL AND A FINE MATERIAL

Murex Electrodes are made in the United States by the American Murex Corp. and are sold by the Metal & Thermit Corp., pioneers of welding and manufacturers of Thermit. Literature on Thermit welding for many kinds of heavy repair work promptly sent on request. Write.

METAL & THERMIT CORPORATION, 120 BROADWAY, NEW YORK, N. Y.
ALBANY . PITTSBURGH . CHICAGO . SOUTH SAN FRANCISCO

MUREX

HEAVY MINERAL COATED ELECTRODES

NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Automatic Fixed Reading Provided by Tachometer

Amthor Testing Instrument Co. Inc., 309 Johnson street, Brooklyn, N. Y, recently announced a portable tachometer for testing machine speeds in revolutions per minute. Type No. 350 is shown in the illustration at the base of this column. When applied to a rotating shaft the pointer of the tachometer instantly indicates the speed and follows every pickup and slowdown. When taken away from the shaft the pointer remains fixed at the speed reading on the dial.

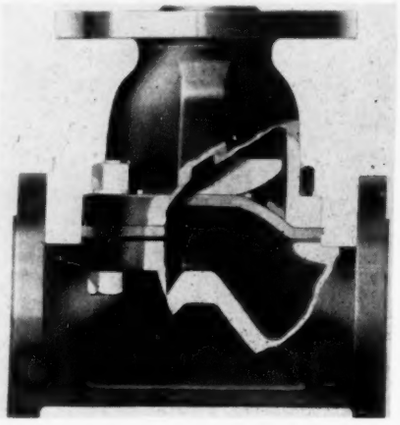
The dial reads directly in "revolutions per minute," but accessories are provided so that all "feet per minute" cutting and surface speeds can be taken. Every tachometer has four speed ranges, each of which is read separately over the entire dial, thereby giving actually four times the graduation space on the same dial and consequently closer readings. The instrument is constructed with a finely balanced cross pendulum governor movement and is hand calibrated for accuracy and dead beat in action.

◆

Valve Handles Corrosive And Other Liquids

Hills-McCanna Co., 2349-59 Nelson street, Chicago, has developed a new valve under the Saunders patent, for handling air, volatile substances, hot or cold water, solids in suspension and a large number of corrosive liquids. The valve, shown in the accompanying illustration, is available in any commercial material; also glass and rubber linings.

At no time does the liquid handled



Hills-McCanna valve available in any material, rubber lined

reach the bonnet of the valve or the working parts. No stuffing box is necessary.

The follower or compressor forces the diaphragm to the seat to close the valve and releases the pressure for opening. A full web on this part holds the diaphragm in a cup shape when the valve is closed, preventing distortion and wear on the diaphragm. This web also prevents the diaphragm from blowing into the bonnet when the valve is under pressure in both the open and closed position.

◆

Adjustment of Bearings By Compensators Is Automatic

Federal-Mogul Corp., Detroit, is marketing Wyromatick compensators designed to adjust bearings automatically. Controlled preload is provided, insuring that any clearance necessary to allow for expansion and contraction is controlled positively within the compensator, shown herewith.

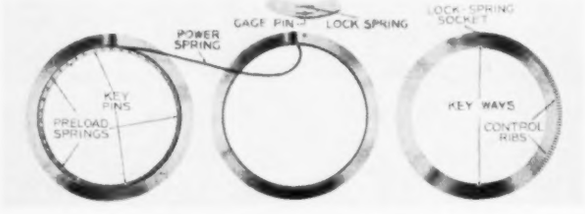
Springs inserted in the master cam supply the power to take care of the preload feature and are varied in number to give extact preload desired. The master and gage cams are a pair of mating helical cam-faced members, which, when assembled in proper position, will increase their joint cross sectional dimension when rotated in opposite directions. When the compensator is assembled, it is wound and held in wound position by the lock spring which engages in the spring socket. When drawn up in a bearing assembly, the pressure releases the lock spring. Then the power spring urges rotation in the gage cam but this rotational action is stopped by the gage pin engaging one of the ribs on the control washer. It cannot pass this point.

◆

Adds New Electric Hoist to Line of Equipment

Philadelphia Gear Works, Philadelphia, has added to its line a new electric hoist, built in sizes from ¼ ton to 3 tons, inclusive. The hoist, shown herewith, has features including high lift with low headroom; noiseless operation; no load brake necessary; balanced so that load is always under exact center of rail; hoist swivel trolleys turn on 4-foot radius; operating mechanism sealed against oil, dirt and oil-leakage; heavy-duty construction and interchangeability of parts.

Standard electric motors are used and the hoist is push button controlled. Hook swivels are ball bearing equipped. The cable drums are of large diameter with accurately ma-



Left—Amthor portable tachometer for testing machine speeds

Above—Federal-Mogul compensator adjusts for bearing wear

Right—Electric hoist manufactured by Philadelphia Gear Works

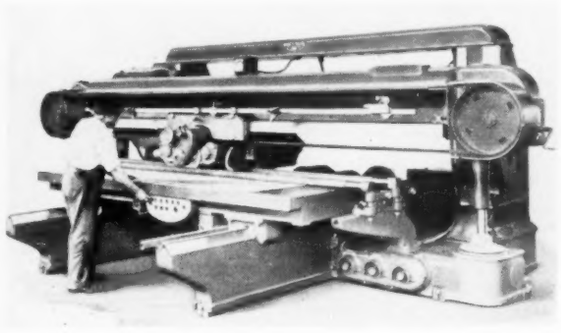
chined grooves. Hardened steel trolley wheels with ball bearings, nickel-steel heat treated helical gears and hardened and ground thread worms, automatic upper limit hook stop; forged steel hooks and positive oil-bath lubrication are among the other features.

◆

Designs Sheet Surfacing And Polishing Machine

Mattison Machine Works, Rockford, Ill., recently developed an abrasive belt surface grinding and polishing machine for use on steel sheets. After the sheet is set into place, the machine, shown in the accompanying illustration, is practically automatic. A heavy cross-rail, mounted on the columns, carries tracks on which the carriage travels.

The main driving motor is mounted in the carriage head and drives the contact roll, which in turn drives the belt. The belt passing over the small rubber-covered idler rolls on the carriage head thus is flexed around the contact roll not only for the purpose of increasing driving power, but the flexing of the belt aids in dislodging loose particles lodged between the abrasive grains.



Left — Abrasive belt surface grinder and polisher for use on steel sheets, which was recently designed by Mattison Machine Works

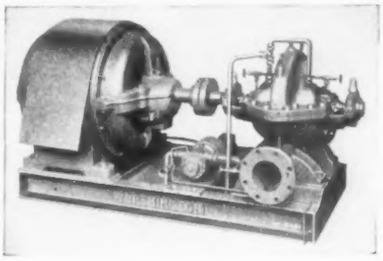
◆

Centrifugal Pumping Unit Primed Automatically

Worthington Pump & Machinery Corp., Worthington avenue at Warren street, Harrison, N. J., recently placed on the market a self-contained automatically-primed centrifugal pumping unit, shown herewith. It comprises an electrically driven centrifugal pump mounted with its motor on a fabricated steel bedplate, together with a priming unit of the wet vacuum type, controlled by an electric pressure switch.

The evacuator motor is connected across the main pump motor line at a point between the starting switch and the motor, so that in starting the motor the evacuator motor also starts. The pressure switch is placed in the evacuator motor circuit and its pressure connection is piped to the discharge nozzle of the main pump. Whenever the discharge pressure of the main pump is below a predetermined point the pressure switch is held in the closed position.

When discharge pressure comes up to normal the switch opens and remains so as long as pressure is maintained. If the pump loses its prime the discharge pressure naturally drops.



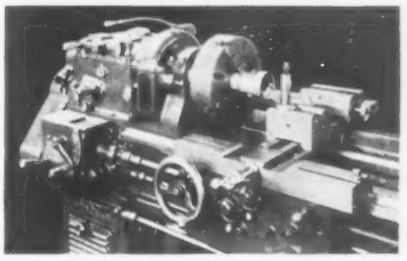
Above — Worthington automatically-primed centrifugal pumping unit is self-contained

◆

Lathe Machines Pistons in Less Than 4 Minutes

Cincinnati Lathe & Tool Co., Oakley, Cincinnati, announces that when properly equipped its latest line of Cincinnati lathes will machine automobile pistons complete in less than 4 minutes apiece. This can be reduced at least one-third by using tungsten carbide tools, it is claimed. The accompanying illustration depicts boring and facing the skirt in pistons while holding them in a 4-jaw independent lathe chuck, which is the first operation. Diameter of the bore is held to size by the micrometer dial on the cross screw.

When boring the wristpin for second operation with a fly cutter held in the bar, the pistons are located and clamped in a fixture. The last operation of turning and facing the end is done with a tool in the front rest and the grooving with four tools in the rear. This latest lathe is supplied in sizes from 16 to 32-inch inclusive, and in 2 foot lengths of bed from 6 feet and up.



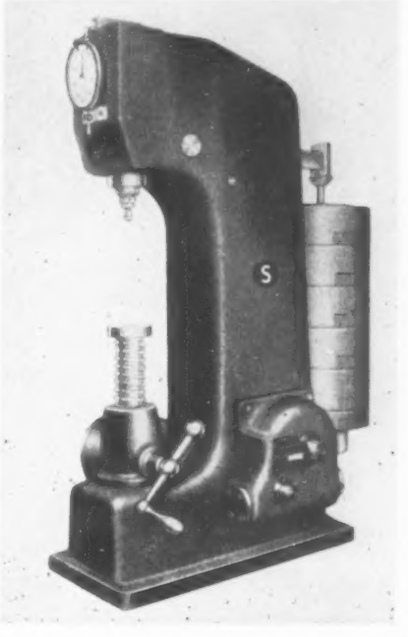
Cincinnati lathe equipped to machine automobile pistons speedily

◆

Develops Brinell Hardness Testing Machine

Steel City Testing Laboratory, 8843 Livernois avenue, Detroit, is manufacturing a brinell hardness testing machine which is motor driven with push button control. Outstanding features of the unit, shown in the illustration herewith, include direct reading, dead weight applied with minor and major loads, elimination of spotting, and the elevation of specimen supporting table by rapid crank manipulation.

All models of the UK-300 can be employed for making brinell tests from 250 to 3000 kilograms. The maximum vertical opening for specimens is 11½ inches and the throad depth from center of specimen table to housing is 4¾ inches.



Brinell hardness testing unit designed by Steel City Testing Laboratory

BUILT BY MORGAN *Engineering* » »

AMONG the types of special machinery built by Morgan engineering skill is this 72″ Hot Saw with two 66″ Cold Saws, designed for cutting large rolled sections. It is of heavy duty construction throughout with arbors mounted in Timken bearings. Feed is of the indirect type, wherein variable voltage is used in the feeding and constant voltage in the return stroke. This is accomplished through a variable voltage generator, coupled to the saw motor which supplies current to a variable speed feed motor. This arrangement allows the operator to control the feed for maximum production and permits a rapid return stroke of the saw carriage.

THE MORGAN ENGINEERING COMPANY

New York, 25 Broadway **ALLIANCE, OHIO** *Pittsburgh, 1420 Oliver Bldg.*

Morgan Products Include

BLOOMING MILLS
PLATE MILLS
CONTINUOUS MILLS
STRUCTURAL MILLS
ELECTRIC TRAVELING CRANES
CHARGING MACHINES
INGOT STRIPPING MACHINES
LADLE CRANES
SOAKING PIT CRANES
STEAM HAMMERS
STEAM HYDRAULIC FORGING PRESSES
SPECIAL MACHINERY FOR STEEL MILLS

•

DESIGNERS
MANUFACTURERS
CONTRACTORS

Steel Rate Up to 18; Market Base Broadens

Production Now Highest Since Early June—Hope for Support of Tonnage Buyers in October—Railroad Interest Grows—Iron Melters Covering Ahead

AN ADVANCE of one point in steel production last week put the industry on the basis of 18 per cent as it entered the fourth quarter, the highest rate since the first week of June and comparing with 13½ per cent when September opened.

This unbroken rise in production through September rather accurately reflects an increase in the number of moderate size orders from average consumers. To a lesser degree, some of the expansion in operations the past ten days resulted from a bunching of specifications.

As the new quarter opens, the iron and steel markets unquestionably are on a broader base. While consumers have been building up inventories slightly, most recent bookings have passed into consumption. For the former there will be no immediate reordering; it is believed that consumption will continue to grow.

But for October to develop improvement comparable with that of September will require more active support from such tonnage outlets as the railroads and the automotive and building industries. Indications are that railroad and automotive needs will gain; building is more doubtful as projects which are candidates for self-liquidating loans are being put through a third degree that will eliminate many.

October promises to be a mixed month. The imminence of the national elections is sponsoring a "wait until after election" attitude in some quarters. Financial statements for the third quarter, which will be issued beginning the last week of the month, will make unpleasant reading. The United States Steel Corp. on Oct. 25 faces a decision on the preferred dividend.

Hence the industry enters October no less confident of the long pull but a little more sober over the immediate situation. It is not improbable that the taking off of some capacity may break the upward line of production.

The railroads are much more active, for small lots. Western Maryland has bought 1000 tons of rails and the Norfolk & Western is inquiring for 5000 tons. For freight cars to be constructed by an R. F. C. loan the Pennsylvania will shortly buy about 15,000 tons of plates and shapes, with the Reading and Central of New Jersey about to place slightly smaller lots.

Building steel needs continue largely prospective. Formal placing of 60,000 tons for the New Orleans Belt line bridge, with the American Bridge and McClintic-Marshall companies, is expected daily. About 35,000 tons of steel, largely cable, will be up for bids Oct. 14 for the Golden Gate bridge. Last week's awards, at 10,764 tons, were below the seasonal average despite the booking of 4200 tons for the Cincinnati postoffice. For three destroyers the navy needs 2100 tons of steel .

Gradually, automotive consumers are closing on their fourth quarter needs, and since a week ago slightly more steel has been moving to Detroit.

Raw materials continue to have the edge on finished products. September sales and shipments of pig iron averaged 15 to 20 per cent over August, while in finished material the average gain in bookings probably was 10 per cent. This, however, appears to insure a gain in unfilled tonnage of the United States Steel Corp.

At Pittsburgh, a steelmaker is inquiring for 20,000 tons of basic iron, while a round lot of bessemer has been closed there. Much of the iron recently purchased and now under negotiation is for delivery at least through the first quarter of 1933. Scrap continues strong, but without noteworthy buying the past week.

Producers of sheets are making a more determined stand for firmer prices, making Oct. 15 the deadline on releases against third quarter commitments. Railroad spikes, weak for some time, have been officially reduced to 2.40c. Other prices are unchanged, leaving the iron and steel composite of STEEL at $29.32, the finished steel index at $47.50, scrap composite at $7.12.

Composite Market Averages

	Oct. 1	Sept. 24	One Month Ago Sept., 1932	Three Months Ago July, 1932	One Year Ago Oct., 1931	Ten Years Ago Oct., 1922
Iron and Steel Composite	$29.32	$29.32	$29.32	$29.47	$30.74	$43.60
Finished Steel Composite	47.50	47.50	47.50	47.71	48.22	59.55
Steelworks Scrap Composite	7.12	7.12	7.04	6.06	8.50	18.45

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

COMPARATIVE PRICES OF IRON, STEEL AND COKE

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Oct. 1, 1932	Sept., 1932	July, 1932	Oct., 1931
Pig Iron				
Bessemer, del., Pittsburgh	$15.76	15.76	15.76	18.16
Basic, valley	14.00	14.00	14.00	16.50
Basic, eastern, del. eastern Pa.	13.75	13.75	14.25	16.35
No. 2 foundry, del. Pittsburgh	15.76	15.76	15.76	18.16
No. 2 foundry, Chicago	15.50	15.50	15.50	17.20
*Southern No. 2, Birmingham	11.00	11.00	11.00	12.00
**No. 2X, Virginia furnace	17.75	17.75	18.00	18.00
**No. 2X, Eastern, del. Phila.	14.26	14.26	14.76	17.26
Malleable, valley	14.50	14.50	14.50	16.90
Malleable, Chicago	15.50	15.50	15.50	17.10
Lake Superior charcoal, del. Chi.	23.04	23.04	23.04	25.04
Gray forge, del. Pittsburgh	15.63	15.63	15.63	17.53
Ferromanganese, del. Pittsburgh	73.24	73.24	73.24	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

Coke				
Connellsville, furnace, ovens	2.00	2.00	2.00	2.40
Connellsville foundry, ovens	2.75	2.75	3.00	3.25
Semifinished Material				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	29.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	29.00
Billets, open-hearth, Pittsburgh	26.00	26.00	26.00	29.00
Wire rods, Pittsburgh	37.00	37.00	37.00	35.00

	Oct. 1, 1932	Sept., 1932	July, 1932	Oct., 1931
Finished Material				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.60
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.91	1.89
Iron bars, Chicago	1.65	1.65	1.65	1.70
Shapes, Pittsburgh	1.60	1.60	1.60	1.60
Shapes, Philadelphia	1.75	1.75	1.75	1.76
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.60	1.60
Tank plates, Philadelphia	1.79½	1.79½	1.79½	1.80½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.70	1.70	1.70	1.85
Sheets, No. 24 hot ann., Pitts.	2.10	2.10	2.20	2.40
Sheets, No. 24 galvan., Pitts.	2.75	2.75	2.85	2.90
Sheets, No. 10 blue anneal., Chi.	1.85	1.85	1.85	2.00
Sheets, No. 24 hot ann., Chi.	2.25	2.25	2.35	2.55
Sheets, No. 24 galvan., Chi.	2.90	2.90	3.00	3.05
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.95	1.90
Tin plate, per base box, Pitts.	4.75	4.75	4.75	4.75
Scrap				
Heavy melting steel, Pitts.	$9.75	9.50	8.35	10.45
Heavy melting steel, eastern Pa.	7.25	7.25	6.25	8.20
Heavy melting steel, Chicago	6.00	6.00	4.50	7.75
No. 1 wrought, eastern Pa.	7.25	7.25	6.25	9.20
No. 1 wrought, Chicago	5.25	5.25	4.00	8.00
Rails for rolling, Chicago	7.25	7.25	6.60	10.50

Sheets

Mills Taking Firmer Stand, With Expiration of Some Low Quotations—Volume Is Better

SHEET PRICES, PAGE 43

Pittsburgh—Galvanized and black sheets continue to lead in demand. Orders are small, and diversified. Railroad car repair work will take good tonnages of heavy black and galvanized sheets. A leading interest is adhering to a schedule calling for 2.20c on black sheets and 2.85c base, Pittsburgh, for galvanized, althought it is understood concessions still prevail. Little demand is noted for blue annealed and heavy hot-rolled sheets, which continue 1.70c and 1.55c, Pittsburgh, respectively.

New York—Sheet sellers are quoting the recently announced fourth quarter prices, apparently drawing the line on concessions with the advent of the new month. On last-minute concessions the business as a rule was booked for shipment at mills' early convenience. Jobber buying picked up as the quarter closed, and some fair tonnages were placed by manufacturers.

Philadelphia — Buying by radio and barrel manufacturers has contributed to further improvement in sheet demand, and the October outlook is brightened by prospects of automotive buying, bodymakers in this district now finishing new dies. Sellers generally are applying the recently announced fourth quarter prices.

Youngstown, O.—Orders from automotive, stamping, enameling and other industries are leading to gradual expansion in sheet mill operations. Youngstown Sheet & Tube Co.'s Brier Hill mills resumed Sept. 30 after three months' idleness. This followed recent resumption at the company's Campbell mills. Other independent mills are continuing to operate part-time. Prices appear firmer.

Cleveland—Evidently new automobile models are not in early prospect as no sheet tonnage has been placed recently. Automotive sheet stocks at both builders' plant and rolling mills are low, and it will require five to six weeks from time sheets are specified to the time they can be converted into automobiles. Seasonal improvement is apparent in some other lines, and volume has increased moderately. Friday, Sept. 30, was the time limit important makers gave customers to close on "concession" quotations issued recently; below 2.85c on galvanized and under 2.20c on black. Buyers were notified that no specifications would be accepted for shipment beyond Oct. 15. The result was that some users specified a little more liberally for early known requirements.

Cincinnati—Bookings in this district during the past month were above those of August, although a slight recession was encountered during the past week. Buying for future needs is light.

Chicago — Sheet specifications showed only a small increase during September, and this was furnished principally by better orders from small consumers. Automotive demand continues slow, with a small increase looked for during October. Sheet requirements for various types of repair work are reported more active. Producers usually quote 2.30c, base, for hot-rolled annealed sheets, and 2.95c for galvanized.

Birmingham, Ala.—Sheet production has been increased, and new orders will sustain the present rate for some weeks. Mills here are shipping sheets to the Philippine islands.

De Laval Steam Turbine Co., Trenton, N. J., has been awarded contract for two turbo generator sets, accessories and spares for the navy for delivery at New York, at $34,000.50.

CURRENT FINISHED STEEL PRICES

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10

(24 to 48 inches wide)

Pittsburgh, base	1.55c
Gary, Ind. Harbor, base	1.65c
Chicago, delivered	1.70c
New York, delivered	1.90c
Birmingham, base	1.70c
Philadelphia, delivered	1.86c

BLUE ANNEALED NO. 9-10

Pittsburgh, base	1.70c
Chicago, district mills	1.80c
Chicago, delivered	1.85c
Philadelphia, delivered	2.01c
New York, delivered	2.05c
St. Louis, delivered	2.07½c
Birmingham, base	1.85c
San Francisco c.i.f.	2.32½c

HOT ROLLED ANNEALED NO. 24

Pittsburgh, base	2.10c to 2.20c
Gary, Ind. Harbor, base	2.20c to 2.30c
Chicago, delivered	2.25c to 2.35c
*New York, delivered	2.55c
*Philadelphia, del.	2.51c
Birmingham, base	2.35c
St. Louis, delivered	2.47½c to 2.57½c
San Francisco, c.i.f.	2.85c
Detroit, delivered	2.18½c

GALVANIZED NO. 24

Pittsburgh, base	2.75c to 2.85c
Gary, Ind. Harbor, base	2.85c to 2.95c
Chicago, delivered	2.90c to 3.00c
*Philadelphia, delivered	3.16c
*New York, delivered	3.20c
Birmingham, base	3.00c
St. Louis, delivered	3.12½c to 3.22½c
San Francisco, c.i.f.	3.50c

AUTOBODY NO. 20

Pittsburgh, base	2.70c to 2.80c

FURNITURE

Pittsburgh, No. 10 heavy	2.55c to 2.65c
Pittsburgh, No. 20 light	3.05c to 3.15c

TIN MILL BLACK NO. 28

*Pittsburgh, base	2.30c to 2.40c
*Gary, base	2.40c to 2.50c
St. Louis, delivered	2.77½c

HEAVY COLD ROLLED NO. 10

Pittsburgh, base	2.15c to 2.25c
Gary, Ind. Harbor, base	2.25c to 2.35c
Chicago, delivered	2.30c to 2.40c
*Philadelphia, delivered	2.56c
New York, delivered	2.60c
St. Louis, delivered	2.62½c

COLD ROLLED NO. 20

Pittsburgh, base	2.65c to 2.75c
Gary, Ind. Harbor, base	2.75c to 2.85c
Chicago, delivered	2.80c to 2.90c
*Philadelphia, delivered	3.06c
*New York, delivered	3.10c
St. Louis, delivered	3.12½c to 3.22½c

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95

(Per pound)

Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing (9-11 ga.)	$55.00
(12½ ga. and lighter)	$60.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, delivered	1.79½c
New York, delivered	1.90c
Boston, delivered	2.02c
Buffalo, delivered	1.85½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Birmingham, Ala., base	1.75c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	2.00c
St. Louis, delivered	1.97½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, delivered	1.75c
New York, delivered	1.87c
Boston, delivered	2.00½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
Philadelphia, delivered	1.91c
New York, delivered	1.95c
Boston, delivered	2.02c
Pittsburgh, cold finish	1.75c
Pittsburgh, forg. qual.	1.85c
San Francisco, c.i.f.	2.10c

RAIL STEEL

Chicago Heights	1.50c
Eastern mills	1.20c to 1.30c

IRON

Chicago, base	1.60c
New York, delivered	1.85c to 1.90c
Philadelphia, delivered	1.81c to 1.86c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
Pitts., stock lengths, mill	1.60c
Chicago, billet	1.60c to 1.75c
Chicago, rail steel	1.30c to 1.45c
Philadelphia, cut lengths	1.86c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

Base, Pittsburgh

10,000 to 19,999 pounds	1.70c
20,000 to 59,999 pounds	1.65c
60,000 to 99,999 pounds	1.60c
100,000 pounds and over	1.57½c

Chicago, Cleveland, Buffalo 5c higher; Detroit, 20c; eastern Michigan 25c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold Strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Tin and Terne Plate

Per 100-pound box, Pittsburgh

Tin plate, coke base, cont.	$4.75
Tin plate, coke base, stock	3.85
Long ternes, 24, unassorted	2.80c

Gary, Ind., base 10 cents higher

Alloy Steel

Hot Rolled—F.o.b. Mills

Hot rolled; base 2.45c to 2.65c, mills; differentials to various consumers

S.A.E.	Alloy Diff.	4600 .20 to .30 Mo.	
2000	0.25	1.25-1.75 Ni.	1.05
2100	0.55	5100 .80 - 1.10 Cr.	0.45
2300	1.50	51.00 Cr. spring	0.20
2500	2.25	6100 bars	1.20
3100	0.55	6100 Spring	0.95
3200	1.35	Cr., Ni., Van.	1.50
3300	3.80	Carbon van.	0.95
3400	3.20	9250 (flats)	0.25
4100 .15 to .25 Mo.	0.50	9250 (rds., sq.)	0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16 in. wide, Pitts.	1.45c
Do., Chicago	1.55c
Do., del. Philadelphia	1.76c to 1.81c
Do., del. New York	1.80c to 1.85c
Cooperage hoop, Pitts.	1.55c to 1.60c
Do., Chicago	1.65c to 1.70c
Cold-roll, strip, Pitts., Cleve.	2.00c
Worcester, 3 tons over	2.20c

Rivets, Wrought Washers

Struc., c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. and smaller, Pitts., Chicago, Cleveland	70, 10 and 5 off
Washers, c.l., Pitts. dist.	$6.50 to 6.75 off
Do., Chicago district	7.00 to 7.50 off

Rails, Track Material

Standard rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	23.00 to 25.00
Light rails, 25-45, mills	$32.00
Light rails, Chicago	$34.00
Angle bars, mills	2.75c
*Spikes, railroad, mills	2.40c
*Spikes, boat, barge, Pitts.	2.65c
Track bolts, Chicago	3.50c
do., standard, jobbers	73 off list
*Tie plate, Pitts.	$37.00
*Tie plates, Chicago	$35.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 75 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list ..... 75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 75 off

Tire bolts ..... 60 and 10 off

Stove bolts, 77½, 25 and 10 off in pkgs.; 86 off in bulk.

Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 75 off

HEXAGON CAP SCREWS

Milled ..... 80-25 off

Upset 1 in. diam. and smaller 80-25-10 off

SQUARE HEAD SET SCREWS

Upset, 1 in. and smaller ..... 75-10-10 off

Headless set screws ..... 75-10 off

Upset, larger than 1 in. ..... 75-10 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do., less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.05
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Steel sheet piling, Pitts.	1.90c

Bars

Small User Buying Gives Support—Larger Interests Fail to Take Usual Tonnages for Fall

BAR PRICES, PAGE 43

Chicago—Soft steel bar demand is fairly steady, with occasional gains noted in orders from small consumers. The farm implement industry has shown little change in its requirements and although some improvement in operations of this industry had been anticipated for October, present steel demand indicates a limited upturn. Specifications from automotive interests are broadening slowly, with miscellaneous buyers providing the chief support to demand. Railroad orders continue light and in some instances are quieter than a month ago. Bar iron sales have shown practically no change over recent weeks. Prices are fairly steady at 1.70c, Chicago, for soft steel, 1.50c for rail steel and 1.60c for bar iron.

Philadelphia—Steel bar demand continues sluggish, with little improvement. However, some railroad buying is expected soon. Prices are 1.60c, Pittsburgh. Common iron bars are 1.50c to 1.55c, Pittsburgh.

Pittsburgh—Merchant bar demand is made up consistently of small orders, in aggregate larger in September than August. Bolt and nut makers and other general manufacturers are not ordering material ahead. Alloy bar demand shows no major change. Prices continue with 1.60c on carbon bars and 2.65c, nominal, for alloy.

Youngstown, O.—Small lots of steel bars are being specified to valley mills from a wide diversity of consumers, giving a fair rate of production. An increase in alloy steel bar demand is indicated by lighting of a second open-hearth furnace by Republic Steel Corp. at Massillon, O.

Cleveland—Small orders for commercial steel bars are more numerous, and tonnage has improved moderately, but business from railroads and automotive interests is slow. Automotive builders have been closing contracts with mills for fourth quarter requirements, to be specified as required. Bar prices are on a basis of 1.65c, Cleveland.

Cold-Finished Orders Increase in Volume

Cold Finished Prices, Page 43

Pittsburgh — Small-size cold-finished orders raised September specifications considerably over those in August, July or June. For some interests the betterment extends even further. This appears to be due entirely to miscellaneous consuming lines and does not include important automotive commitments. The minimum price of 1.70c, base, Pittsburgh, continues.

Tin Plate Production To Increase This Week

Tin Plate Prices, Page 43

Pittsburgh — Tin plate operations held to an average of 40 per cent last week. This week the rate will go to fractionally under 45 per cent, highest in weeks. American Sheet & Tin Plate Co. is starting two divisions Oct. 3; and a leading independent, among others, also will increase production this week. The nominal price of $4.75 per base box continues, although canners still press for revision. This will be deferred at least a month.

Plates

Moderate Improvement in Tonnage—Three Navy Destroyers To Take 2100 Tons of Steel

PLATE PRICES, PAGE 43

Chicago—Plate demand has improved moderately, with awards of fabricated material headed by 1000 tons for oil storage tanks for Shell Petroleum Corp. Several water tank projects are pending, one for Sheboygan, Wis., taking 300 tons, scheduled to be placed shortly. Tank inquiry from the oil industry is slow to increase. Miscellaneous plate orders are slightly heavier, although demands of the railroads continue quiet. Plates remain 1.70c, Chicago.

Boston—Demand for plates holds up. Oil-burner fabricators are specifying well. Small tank work has improved.

New York—Plates are moving in better volume, with prices steadier. Approximately 500 tons of steel for caissons, mainly plates, have been placed for a west-side highway in New York.

Philadelphia—A more diversified and improved volume of demand prevails for plates. Sizable tonnages probably will be placed shortly by the Pennsylvania and Reading railroads. A destroyer will be built at the local navy yard, requiring about 700 tons of plates, bars and shapes, mainly plates. Two similar boats are to be built at the Brooklyn and Boston navy yards. Prices show more strength at 1.70c, Coatesville, in car lots.

Pittsburgh—Local barge builders lost about 900 tons of plate work to the St. Louis Structural Steel Co., St. Louis, for 40 pontoons and to Alco Products Inc., New York, for fabricated pipe. This work was advertised for the federal engineers, St. Louis. Considerable government work is being completed and there is little in immediate prospect. Award has definitely been announced to Marietta Mfg. Co., Point Pleasant, W. Va., for the Memphis, Tenn., drydock, to take about 400 tons. Plate mills are awaiting definite inquiry from the Pennsylvania railroad for plain material for the box cars it plans to build. The general market for plates is based on 1.60c, Pittsburgh.

Cleveland—Much more interest is manifest in contracts for plates for fourth quarter than was apparent at the outset for the third. There has been no piling up of tonnage orders so far, but a decided improvement in the number and size. Oil refinery work is outstanding. A railroad, formerly buying five or six plates at a time, has placed two carloads. Manufacturers of power shovels and small cars have placed some orders recently. The market is 1.60c, base, Pittsburgh.

Contracts Placed

1000 tons, three oil storage tanks, Houston, Tex., for Shell Petroleum Corp., to Chicago Bridge & Iron Works, Chicago.

900 tons, pontoons and pipe, St. Louis engineers, Alco Products Inc., New York, awarded fabricated pipe and St. Louis Structural Steel Co., St. Louis, pontoons.

500 tons, ten dredge pontoons, 40 feet long and four 48 feet, United States engineer, Memphis, to St. Louis Structural Steel Co., East St. Louis, Ill.

400 tons, floating drydock, Memphis, Tenn., to Marietta Mfg. Co., Point Pleasant, W. Va.

100 tons, tank and tower, Plymouth, Mass., to Chicago Bridge & Iron Works, Chicago.

100 tons or more, oil tanks, City Oil Co., Bangor, Me., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

Unstated tonnage, 30 small steel pontoons, United States engineer, Montgomery, Ala.; bids Sept. 20.

Contracts Pending

2100 tons, mainly medium-steel plates, three destroyers, to be built at New York, Boston and Philadelphia navy yards; bids to be asked soon by bureau of supplies and accounts, navy department, Washington.

600 tons, 85 helium tanks for Sunnyvale, Calif., dirigible base; bids soon.

300 tons, water storage tank, Sheboygan, Wis.; Chicago Bridge & Iron Works, Chicago, low.

100 tons, standpipe, Greenfield, Mass.

100 tons, 14 and 18-inch riveted steel pipe, Terra Bella irrigation district, Terra Bella, Calif.; bids Oct. 4.

Unstated tonnage, 75,000-gallon tank, Indian school, Rapid City, S. Dak.; bids Sept. 30.

Here and There In Industry

(*Concluded from Page* 14)

all cities on the Ohio river in Ohio and Indiana except Newport and Ashland. C. H. Taylor, Johnston building, Charlotte, N. C., has been made representative for South Carolina and the western part of North Carolina.

□ □ □

Ingersoll Steel & Disc Co., Chicago division of the Borg-Warner Co., has licensed the Allegheny Steel Co., Brackenridge, Pa., to manufacture two-ply stainless steel sheets under Ingersoll patents. This material has a carbon steel base with a veneer of corrosion resisting steel.

□ □ □

Sutton Engineering Co., Pittsburgh, has appointed F. H. Crawford, 50 Church street, New York, its eastern representative. The Sutton company has also appointed the Cleveland Duplex Machinery Co., Cleveland, its representative in the Cleveland district.

□ □ □

Lamneck Products Inc., 416 Dublin avenue, Columbus, O., has been formed to succeed the W. E. Lamneck Co. at the same address, manufacturer of simplified furnace pipe and fittings, registers and furnace accessories. Paul L. Selby is president of the new company, Charles J. Holub vice president, R. B. Thompson secretary and treasurer, Ralph M. Tremain credit manager, and J. C. Bostain general sales manager. Manufacture of the same lines will be continued.

Railroads

Pennsylvania and Reading Steel Needs Not Yet Placed—Some Rail Tonnages Being Booked

TRACK MATERIAL PRICES, PAGE 43

Pittsburgh—Large railroad spikes have been officially reduced to 2.40c, mill. This cut is a confirmation of lower prices which had prevailed for some months previously from a nominal 2.60c market. The Pennsylvania railroad has bought 7500 light rolled steel wheels from a mill here but has not yet taken action on the 18,000 to 20,000 tons of plates, car shapes and bars required for the 1285 box cars it will build. Tonnage purchases by the Reading Co. also are awaited as there has been some delay in figuring car parts needed. Following an order for 2000 tons of 90-pound rails several months ago, the Western Maryland recently placed 1000 tons of heavier section with the Carnegie Steel Co. The market on tie plates continues nominal at $37 per ton. The Pittsburgh & Lake Erie railroad has put additional men to work repairing freight cars at its McKees Rocks, Pa., shops and the Bessemer & Lake Erie railroad plans to resume at its repair and car shops, Greenville, Pa., about Oct. 10.

New York—New York Central plans early car repair campaign involving 1000 freight cars and later may extend this to 5000. Brooklyn & Queens Transit Co. is inquiring for 2500 wheels and the New York Rapid Transit Co. for 1850 wheels, and about 250 axles. Deliveries are to be over the next 12 months. An eastern road is reported to have placed a moderate order for spikes of a new fluted type now being marketed by Bethlehem Steel Co.

Cleveland—Erie railroad has placed orders for about 150 tons of miscellaneous steel for repair purposes, including two carloads of plates and one of nuts and bolts, in addition to its recent order for 900,000 spring washers which was divided among four manufacturers. Nickel Plate also has placed some carload orders. Pennsylvania railroad will require 700 tons of sheets for 3400 car doors, according to its present plan. New York Central is understood to be embarking on a locomotive repair program at its Collinwood, O., shops, and car repair work at its Toledo, O., shops, operations at both shops having increased.

Philadelphia—Early award is expected of close to 15,000 tons of plates, shapes and bars for the 1285 freight cars to be built by the Pennsylivania railroad. Reading Co. also is expected to act soon on the award of approximately 2800 tons of rolled steel still pending for its repair program. As noted in a previous issue, this company recently awarded 600 tons of plates. Orders for 7500 wheels for the Pennsylvania railroad have been given to subsidiaries of the United States Steel Corp. at Pittsburgh and Chicago. Philadelphia Rapid Transit Co. is about to inquire for car wheels.

Washington—Railroad Equipment Finance Corp. has made a loan of $500,000 to the Central Railroad of New Jersey for repairing 75 locomotives, 900 freight and 55 passenger cars and its marine equipment used for handling freight traffic in New York harbor.

Chicago—Steel purchases by railroads show scattered improvement. Accumulation of a number of small rail orders has caused resumption of rail mill operations at Gary on a limited basis. This business, however, involves only small lots and prospects for large tonnages are regarded as unfavorable. Demand for other steel products for repair work is quiet. Purchases of car parts generally are light and unchanged although demand for car wheels has improved moderately. Inquiry is light, including requests for bids on car underframes by several roads, including 100 each for the Western Fruit express and Pacific Fruit Express and 30 caboose underframes for the Chicago Great Western.

Big Four railroad, Oct. 2, restored 1600 men to the payroll of its car shops in Indianapolis.

Car Orders Placed

Central Aquirre Sugar Co., Porto Rico, 25 cane cars to Magor Car Corp.; 150 small cane cars to Belgian manufacturer for delivery duty free.

Rail Orders Placed

Western Maryland railroad, 1000 tons, to Carnegie Steel Co., Pittsburgh.

Car Orders Pending

Ferro Carril al Pacifico de Costa Rica, 25 to 50 box cars; bids asked.

Rail Orders Pending

Norfolk & Western railroad, 5000 tons, 130-pound sections.

Structural Shapes

Early Release of 65,000 Tons For New Orleans Bridge—New Bids Oct. 14 on Approaches and Cable for Golden Gate Bridge—Canadian Structure Active

STRUCTURAL SHAPE PRICES, PAGE 43

New York — Bridge and public work gives the chief support to the shape market. Awards are light. Kenney Bros. Inc., New York, are low for the Albany, N. Y., postoffice, requiring 2500 tons. Plain material is unchanged at 1.60c, base, Pittsburgh.

Boston — Structural lettings are light. The Point of Pines bridge, Revere-Lynn, will take close to 2500 tons of structural material; the substructure, bids in, taking 500 tons of piling.

Philadelphia—Interest in the local structural market continues centered on the proposed 8500-ton United States customs house, Chestnut and Second streets. Buying is comprised largely of a few scattered bridge jobs. Of the navy's $10,000,000 program of miscellaneous construction, noted in STEEL, Sept. 24, $1,600,000 will be expended on a naval hospital here and $350,000 on other miscellaneous work, including buildings, tracks, and a distributing system.

Pittsburgh—Interests backing the New Orleans Belt Line railroad bridge, which will release about 65,000 tons of structural steel to two fabricators, have indicated that work will go ahead shortly. They intend to purchase the Belt Line bonds and to bid on the state bonds, financing state participation. On bids taken a year ago, American Bridge Co. was low for 20,000 tons for the main span and McClintic-Marshall Corp. low for 40,000 tons for approaches. Bids are being readvertised for Oct. 14 on approaches and cable for the Golden Gate bridge, San Francisco. McClintic-Marshall Corp., as reported in STEEL, Aug. 22, 1931, tentatively was awarded 75,000 tons of shapes for the main structure; Columbia Steel Co., 6800 tons for the approaches; and American Cable Co., 28,000 tons of wire and cable.

Cleveland — Several substantial awards were made for work in southern Ohio during the week, including 4200 tons for the Cincinnati postoffice, to McClintic-Marshall Corp., and 700 tons of shapes for a Hamilton county bridge, to the Mt. Vernon Bridge Co., Mt. Vernon, O. Toledo, O., is taking bids on 600 tons of sheet piling for a breakwater; for a power plant at Piqua, O., 350 tons are pending.

Chicago—Shape specifications are well maintained, while awards and inquiries are slightly less active. A fair volume of pending work is scheduled to be closed shortly, including 6000 tons for the federal building at St. Louis, and 1400 tons of shapes in addition to several thousand tons of piling for lock work on the Mississippi river at Canton, Mo., and Alma, Wis.

Contracts Placed

4200 tons, postoffice, Cincinnati, to McClintic-Marshall Corp., Bethlehem, Pa.

3575 tons, bridge, route 6, section I, over West Shore railroad; New York, Susquehanna & Western railroad, and Hackensack river; Little Ferry and Ridgefield Park, Bergen county, New Jersey, to American Bridge, New York, through Rodgers & Haggerty, New York, contractors.

919 tons, barracks, Hamilton field, Calif., to McClintic-Marshall Corp., Bethlehem, Pa.

730 tons, state bridge, Hamilton county, Ohio, to Mt. Vernon Bridge Co., Mt. Vernon, O., through Roberts Supply Co., Lima, O., general contractor.

700 tons, states' group buildings, World's fair, Chicago, to Midland Structural Steel Co., Cicero, Ill.

660 tons, highway bridges, Oklahoma, to Missouri Valley Bridge & Iron Co., Leavenworth, Kans.

650 tons, highway bridge, Rogers Mill county, Oklahoma, to Missouri Valley Bridge & Iron Co., Leavenworth, Kans.

575 tons, state bridge, Northampton county, Pennsylvania, to McClintic-Marshall Corp., Bethlehem, Pa.

325 tons, underpass for New York Central railroad, Detroit, to Whitehead & Kales Co., Detroit.

310 tons, bridge, Ausable Chasm-Port Kent, N. Y., to Lackawanna Steel Construction Corp., Buffalo, through Burr M. Stark, Hadley, N. Y., contractor.

250 tons, James river, Eagle Rock, Va., to Virginia Bridge & Iron Co., Roanoke, Va.; also 70 tons of bars to Knoxville Iron Co., Knoxville, Tenn.

200 tons, bridge, route 207, Crawford county, Pennsylvania, to Lackawanna Steel Construction Corp., Buffalo, through Ortale Construction Co.

190 tons, garage, East Twenty-fourth street ,New York, to Grand Iron Works Inc., New York, through Albert Paul Inc., New York.

180 tons, state bridge, Wells-Weaverton, N. Y., to Lackawanna Steel Construction Corp., Buffalo.

175 tons, bridge, Del Amo avenue, for Los Angeles county, California, to Consolidated Steel Corp., Los Angeles.

155 tons, Staunton street substation, board of transportation, New York, to Harris Structural Steel Co., New York.

130 tons, bridge, Cameron county, Pennsylvania, to Fort Pitt Bridge Works, Pittsburgh, through Irwin & Nalin, Pittsburgh.

120 tons, Pennsylvania railroad bridge, near Merchantville, N. J., to McClintic-Marshall Corp., Bethlehem, Pa.

100 tons, bridges, Moore's run and George's creek, Maryland, to McClintic-Marshall Corp., Bethlehem, Pa.; also 30 tons of concrete bars, to Maryland Steel Products Co., Baltimore.

100 tons, garage, department of public works, Boston, to New England Structural Co., Boston.

100 tons, 25-ton locomotive crane, Sunnyvale, Calif., dirigible base, to Browning Crane & Shovel Co., San Francisco.

100 tons, 45-ton, gas-electric locomotive, Sunnyvale, Calif., dirigible base, to Atlas Car & Mfg. Co., Cleveland.

100 tons, postoffice, Glen Cove, New York, to Thor Iron Works, Brooklyn, N. Y., through Rego Building Corp., New York.

Awards Compared

	Tons
Awards, week ended Oct. 1	**10,764**
Awards, week ended Sept. 24	**9,499**
Awards, week ended Sept. 17	**10,409**
Awards, this week in 1931	**16,437**
Av. weekly awards, 1931	**34,236**
Av. weekly awards, 1932	**15,323**
Av. weekly awards, Sept.	**10,688**
Awards to date, 1931	**1,495,295**
Awards to date, 1932	**612,924**

Contracts Pending

10,000 tons, approximately, bridge, St. Lawrence river, Lachine and Caughnawaga, Que.; bids to be received not later than Oct. 3 by Caughnawaga Bridge commission, Transportation building, Montreal, Que.

6800 tons, approaches, Golden Gate bridge, San Francisco; new bids Oct. 14.

6000 tons, federal building, St. Louis.

2500 tons, superstructure, Point of Pines bridge, Saugus river, Lynn-Revere, Mass.

2100 tons, bridges, Missouri and Oklahoma.

1041 tons, bridge, Kern river near Bakersfield, Calif.; new bids Oct. 13.

1000 tons, Benning bridge, Washington; general contract awarded to the Kauffman Contracting Co., Philadelphia; 250 tons of reinforcing bars also will be required.

600 tons, sheet piling, breakwater, Toledo, O.; plans shortly.

582 tons, river lock, Alma, Wis.; bids Oct. 20.

500 tons, steel piling, Point of Pines, bridge, Saugus river, Lynn-Revere, Mass.; substructure.

500 tons, postoffice, Atlantic City, N. J.

500 tons, postoffice, Wilmington, Del.

500 tons, hospital, Orangeburg, N. Y.

500 tons, high school, Baltimore.

350 tons, highway bridge, Stamford, Conn.

350 tons, power plant, Piqua, O., Green & Sawyer, Lima, O., general contractor.

260 tons, bridge, San Gabriel river, Calif., for United States bureau public roads; bids Sept. 29.
250 tons, lock, Springdale, Pa.
200 tons, nurses' home, veterans' hospital, Bronx, (New York); bids Oct. 25.
157 tons, bridge in Albany county, Wyo.; bids Sept. 27.
120 tons, building, Lee Marble Works, Lee, Mass.; Leo Caproni, contractor and engineer.
100 tons, comprising 70 tons of sheet piling and 30 tons of reinforcing bars, county bridge, Hainesport, N. J.; Snyder Engineering Co., Elizabeth, N. J., general contractor.
100 tons, garage, state department of public works, Boston; Thibadeau & Comeau, low.
Unstated, Union railroad station, Dayton, O.; bids being taken.
Unstated tonnage, postoffice, Lansing, Mich.; Joseph A. Tintari, Chicago Heights, low on limestone and marble; H. G. Christman-Lansing Co., Lansing, low on dolomite limestone; bids Sept. 23.

Bolt, Nut Prices Hold Well for Fourth Quarter

Bolts, Nuts, Rivets Prices, Page 43

Pittsburgh—Fourth quarter contracts have practically all been returned and leading producers report prices firmer. This means 75 off for carriage and machine bolts and a slightly firmer situation on rivets at 2.25c Present orders are moderately better. Woodings-Verona Tool Work, Verona, Pa., shared in an order for 900,000 lock washers placed by the Erie railroad recently.

Philadelphia—Early action by the Pennsylvania railroad is expected in the award of bolts and rivets for the 1285 freight cars to be built in company shops. The Reading Co. has recently closed on 400 tons of rivets to an eastern producer. Bolts and nuts are steady at 75 off and rivets at 2.25c, Pittsburgh, generally.

Cleveland—Bolt, nut and rivet business continues to improve. Railroad buying has become more active. Erie, Nickel Plate, Central of New Jersey and others have placed carload orders for nuts, bolts and rivets, and the New York Central and Pennsylvania are expected in the market shortly. Releases are expected in October on automotive orders. The southern jobbing trade has increased considerably. Prices are firm.

Chicago—Lack of better demand from the farm implement, railroad and automotive industries prevents definite improvement in bolts, nuts and rivets. Shipments to these consumers has shown slight change and betterment in requirements of miscellaneous users is not significant. Most fourth quarter contracts have been signed and little opposition is reported to current prices.

Concrete Bars

September Shipments from Pittsburgh District Mills Best of Year—Private Projects Are Contributing Little Tonnage—Awards for the Week Are Lighter

REINFORCING BAR PRICES, PAGE 43

Philadelphia—The proposed United States customs house, here, on which specifications are expected out shortly, will require 400 to 500 tons of reinforcing bars. Several sizable tonnages still are pending, including 1500 tons of bars and wire mesh for the Thirtieth street postoffice and 1100 tons for two road jobs in New Jersey, for which William Eisenberg, Camden, N. J., is general contractor. Edward Ellis, Westville, N. J., general contractor, is expected to place 400 tons of roadwork immediately.

Boston — Pending requirements for reinforcing steel are heavier, mainly for bridges and roads. For Massachusetts highways 300 tons of reinforcing steel has been placed.

New York—Demand for mesh for state highway work is active, with most of the tonnage going to Pittsburgh district mills. Several thousand tons are near closing.

Pittsburgh—Reinforcing bar business probably was at the best rate of the year in September. Shipments for some interests slightly exceeded those of March. About 250 tons in state highway work at Ellwood City, Pa., have been awarded. The price of new billet reinforcing bars is unchanged at 1.60c.

Cleveland — Some substantial awards of concrete bars were made here during the week, including about 100 tons for the Glenville hospital, Cleveland, and a considerable tonnage of mesh for three miles of highway reinforcing in Broome county, New York. Several state jobs are to be awarded by the general contractors shortly.

Chicago — Reinforcing bar orders and inquiries are less active, with private work contributing little tonnage. Additional material remains to be placed for road work. Mississippi river locks at Canton, Mo., and Alma, Wis., will require 613 tons of bars.

Awards Compared

	Tons
Awards, week ended Oct. 1	2,769
*Awards, week ended Sept. 24	7,867
Awards, week ended Sept. 17	1,580
Awards, this week 1931	4,981
Av. weekly awards 1931	6,808
Av. weekly awards, 1932....	4,156
Av. weekly awards, Sept.....	4,523
Awards, to date, 1931 276,336	
Awards, to date, 1932 166,274	

*Revised

Contracts Placed

600 tons, barracks, Hamilton Field, Calif., to Pacific Coast Steel Corp., San Francisco.
275 tons, weir, Colusa, Calif., to unnamed interest.
250 tons, highway work, Ellwood City, Pa., to Kalman Steel Corp., Bethlehem, Pa.
225 tons, mesh, highway, Scituate and Foster, R. I., to Pittsburgh Steel Co., Pittsburgh, through Sherry Construction Co., Fall River, Mass.
210 tons, bridge, Ausable Chasm-Port Kent, N. Y.; 100 tons of bars to Albany Steel & Iron Supply Co., Albany, N. Y.; 110 tons of mesh to American Steel & Wire Co., New York.
200 tons, highway work, Cameron county, Pennsylvania, to Fort Pitt Bridge Works, Pittsburgh, through Irwin & Nalin, Pittsburgh.
200 tons, foundations, Grove Hall district, high school, Boston, to Northern Steel Co., Boston; Matthew Cummings Co., Boston, contractor.
180 tons, four state bridges, Los Angeles county, California, to unnamed interest.
112 tons, work on Verdugo wash, Los Angeles, to Blue Diamond Co., Los Angeles.
111 tons, bridge work, Indiana, to Laclede Steel Co., St. Louis.
106 tons, bridge in Kane county, Utah, to unnamed interest.
100 tons, laboratory for White Memorial hospital, Los Angeles, to unnamed interest.
100 tons, sewer, Baltimore, to Dietrich Bros., Baltimore.
100 tons, Glenville hospital, Cleveland, to Joseph L. Ryerson & Son Inc., Cleveland, through A. A. Lane Construction Co., Cleveland.
Unstated, mesh for highway, Broome county, New York, to Wickwire-Spencer Steel Co., Buffalo, through Hecker-Moon Co., Cleveland.

Contracts Pending

400 tons, roadwork in New Jersey, to be placed immediately by Edward Ellis, Westville, N. J., general contractor.
255 tons, state bridge over Kern river near Bakersfield, Calif.; new bids Oct. 13.
250 tons, Benning bridge, Washington; general contract to Kauffman Contracting Co., Philadelphia.

166 tons, state highway work, Los Angeles county, California; bids Oct. 13.

151 tons, state highway work in Shasta and Monterey counties, California; bids Sept. 28.

150 tons, Jewish home, Pittsburgh; Nicola Building Co., Pittsburgh, contractor.

New Wrought Pipe Card Makes Discounts Net

Reading Iron Co., Reading, Pa., effective Sept. 26 adopted a simplified method of figuring prices on wrought iron pipe.

In its new card P-81 the company seeks to extend to the new white card simplification sales method which it had applied first several years ago to the red card covering "suggested minimum resale Pittsburgh basing discounts," same being covered in the new red card P-81 RSA, issued simultaneously with the new white discount card and both dated Sept. 26.

While on the face of the new card, comparing only the actual discount figures, on both the new and old cards, there appears to be an advance of 2 to 3 points, in the discounts on the various sizes of Reading wrought iron pipe, which is equivalent to $6 to $7 a ton reduction in the price, yet practically this is the case only in one instance—the 2-inch butt and lapwelded pipe.

In the old cards, the discounts then prevalent on the 2-inch pipe were out of line with the remainder of the discounts on those cards. Hence, to bring this size up to the other discounts, the new cards provide for an actual reduction of $4 a ton in the price. But this is the only instance of an actual price reduction as such.

In apprising the trade of the new application of the well approved plan of discount simplification as developed by the Reading Iron Co. through several years' use of the red card W. S. Shiffer, assistant general manager of sales of the Reading Iron Co., calls attention especialy and specifically to the fact:

"All supplementary discounts and preferentials have been withdrawn;" and again:

"The discounts shown on these cards are net, and are not subject to any further discounts or preferentials."

Hence, the conclusion sought to be conveyed by the Reading Iron Co. in its announcement of Sept. 26 is that, due to the withdrawal of all former supplementary discounts and preferentials, such as 5 per cent and 2½ per cent on both black and galvanized, the new discount quotations just announced actualy form a set-off to the withdrawn preferentials. In effect, therefore, the new wrought iron pipe prices are on a parity with the former prevalent discount card.

Basing its discounts in the sale of its pipe from stock upon Pittsburgh, the Reading Iron Co. evidently had in mind the Pittsburgh carload rate of freight to the particular cities involved in its final distribution. With respect to carload sales direct from mill, it has in mind the Pittsburgh base with freight adjusted to destination in the usual manner.

The new discounts appear in the price table on page 55.

Ferner Names Agents For Swiss Machines

R. Y. Ferner Co., Investment building, Washington, American repd'Instruments de Physique, Geneva, resentative of the Societe Genevoise Switzerland, has appointed H. S. Huncke & Co., 27 South Jefferson street, Chicago, its agent for the sale of measuring and scientific equipment in northern Illinois, southern Wisconsin, eastern Iowa and five counties of northern Indiana. The Huncke company will also sell the Ferner hardness testing instruments, dilatometers and thermal analyzers and invar and elinvar, manufactured by Acieries d'Imphy, France. G. Robert Osgood, 128 Dexter street, Boston, will handle the hardness testing instruments, dilatometers and d'Imphy products in New England. Other agents for the sale of hardness testing instruments have been appointed as follows: A. Preston Petre, 608 Stewart building, Baltimore; Galvin Machinery Sales Co., Brisbane building, Buffalo; Pacific Machinery & Tool Steel Co., Portland, Oreg.; A. M. Andrews, 2215 Leslie avenue, Detroit; and La Chapelle, 389 St. Paul street west, Montreal, Que.

Galvanized Off in Canada

Canadian production of galvanized sheets in the first half of 1932 was 14,155 net tons, compared with 24,967 tons in the same period of 1931. Imports in the first half of 1932 totaled 5895 tons, of which 4559 tons came from the United Kingdom and 1242 tons from the United States.

Continental Can Sales Up

Continental Can Co., New York, reports a substantial increase in August sales over July, resulting in the company's payroll listing 8800 persons, the largest for any month this year.

Pipe

Iron Pipe Revisions Clarify Price Situation—Large Line Projects Still in Abeyance

PIPE PRICES, PAGE 55

Pittsburgh—As noted in the story in the adjoining column, discounts on wrought iron pipe were revised effective Sept. 26. Mechanical tubing and line pipe are moving slowly. Demand for standard pipe appears a little better.

Boston — Plymouth, Mass., has placed 1400 tons of cast pipe with the New England foundry. Inquiry is light.

New York—More than 1400 tons of cast pipe are active, led by 800 tons for the Harlem Valley hospital. Prices are firm.

Cleveland—Some sales of pipe for drilling in southern Ohio figure in the past week's business. The market in the building field here is quiet.

Chicago—Cast iron pipe producers anticipate little business will result the rest of the year as a result of projects financed by the R. F. C., but look for a good carryover into next year. Cast prices are steady.

Cast Pipe Placed

200 tons, 30-inch class B for Portland, Oreg., to United States Pipe & Foundry Co., Burlington, N. J.

Cast Pipe Pending

1000 tons, Deer Lodge, Mont., improvement; general contract to Lease & LeGrade, Great Falls, Mont.

144 tons, 2-inch, Los Angeles; bids Oct. 3.

107 tons, 4 to 10-inch class B or equal, Anaheim, Calif.; United States Pipe & Foundry Co., Birmingham, Ala., low.

Steel Pipe Pending

Unstated tonnage, 4720 feet, 20-inch discharge pipe, United States engineer, Memphis, Tenn.; Alco Products Inc., New York, low; bids Sept. 26.

Strip

Hot-Rolled Orders Better but All Buying Is Small Lots—General Users Give Most Support

STRIP PRICES, PAGE 43

Pittsburgh—Small orders, mainly for hot-rolled strip, created a fair improvement in mill operations last week. Rustless strip also figured prominently in the improvement. Blanket orders have been placed by both Chevrolet and Chrysler on strip steel for fourth quarter, but these interests are not specifying yet. Hot-rolled strip is firm with the minimum 1.45c, Pittsburgh. Cold-rolled demand still is quiet with the market 1.90c to 2.00c, Pittsburgh-Cleveland. The lower of this spread is being done consistently, although there are more orders at the 2.00c level.

New York—The recent award of 250 tons of cold-rolled strip by a Jersey City manufacturer for the Radio City development here is outstanding in the local strip market. Nevertheless, total volume continues to increase and sellers are hopeful they will be able to maintain 1.45c, Pittsburgh, on hot strip, and 2.00c, Pittsburgh, on cold strip.

Philadelphia—Strip sellers report a mild improvement, but with volume behind earlier expectations. Increased radio operations are having a beneficial effect on specifications. Hot-rolled strip is moving generally at 1.45c, Pittsburgh, in car lots, and cold-rolled at 2.00c, Pittsburgh.

Cleveland—Miscellaneous orders for hot and cold-rolled strip hold their recent gains. Some fairly good orders have been placed for hot-rolled for brake-drum manufacture. Hot-rolled strip holds at 1.45c, base, Pittsburgh, and the usual price of cold-rolled is 2.00c, base, Cleveland.

Chicago—Changes in strip specifications are slight. Better demand is appearing from small consumers, while requirements of the automotive industry, although spotty, are tending upward. Strip mill operations continue around 10 per cent. Prices generally are 1.55c, Chicago, on hot and 2.00c, Pittsburgh-Cleveland, on cold.

Steel Rate Gains Point to 18; Gary Rail Mill Resumes

Pittsburgh — Steel ingot production held last week at 16 per cent, with the two leading mills here operating at this average figure. Two independent mills have on two open hearths each. Blast furnace schedules include 9 out of 54 steelworks furnaces. Five belonging to three independents and four to United States Steel Corp. The operating rate for this week gives indication of continuing or fractionally bettering the 16 per cent average.

Philadelphia — Eastern steelmaking operations are being maintained at 14-15 per cent. One leading producer has been able to step up operations three points the past fortnight.

Buffalo—Under the stagger system, steelworks operations here were 11 per cent in the week ended Oct. 1 and will regain to 19 per cent in the week ended Oct. 8. Bethlehem lighted a fourth open-hearth furnace Sept. 29. This week Republic will operate three furnaces and Wickwire-Spencer one.

Operations, week ended Oct. 1	**18**
Operations, week ended Sept. 24	**17**
Operations, week ended Sept. 17	**15**
Operations, one year ago	**29**
High for 1932, Feb. 6	**28.5**
Low for 1932—July 9	**12**

Youngstown, O. — District ingot output last week was a fraction higher at 19-20 per cent, against 19 per cent the prior week and a gain of a point or more was anticipated this week. Finished steel production is slightly higher, partly due to automotive buying. All operators still expect a slow advance in October, prior to the election.

Cleveland—Steel ingot production here in the week closed Oct. 1 held at 23 per cent, and is scheduled at the same rate for this week. Corrigan, McKinney Steel Co. and American Steel & Wire Co. each has three open hearths in operation; Otis Steel Co. two. No increase is in prospect until some of the heavy stocks of ingots accumulated in August are worked out.

Chicago — Ingot production increased several points during the past week to an average of 16-17 per cent. Blast furnace operations held at eight active stacks of 36 steelworks furnaces. Outstanding in finishing mill schedules was the resumption of rail production at Gary. Output of other finishing mills also expanded slightly. American Sheet & Tin Plate Co., a Steel corporation subsidiary, Oct. 1 reopened its Elwood, Ind., mill.

Birmingham, Ala. — Steelmaking operations expanded five points to 30 per cent after being at 25 per cent through September. This rate will hold at least through the current week.

Sloss-Sheffield Steel & Iron Co. returned 300 men Oct. 1 on reopening its Bessemer ore mines.

Warehouses Feel Stronger Demand on Steel Stocks

Warehouse Prices, Page 55

New York—Warehouse sales volume fails to show material improvement and daily gains are irregular and not sustained.

Pittsburgh—September bookings equal August. Business in tin plate, sheets and other flat rolled products has been better since the first of the month. Prices are unchanged.

Detroit—September closed holding the improvement which the early weeks registered over August.

Cincinnati—Volume of warehouse sales here during the past month is only slightly ahead of August, and below seasonal expectation. Demand is broad, but individual orders continue small. Prices are steady.

Chicago—Warehouses are encouraged by better recent business. The upturn is well distributed.

St. Louis—Despite lessened demand during the last ten days of September, warehouse and jobbing interests report the volume of business for that month ahead of August.

Iron Ore Requirements for Railroad Material Improve

Iron Ore Prices, Page 50

Cleveland—A significant development in the iron ore market is the fact that many iron and steel plants specializing on or making material almost exclusively for railroad purposes have increased their orders for ore. This improvement can be traced directly to actual and anticipated needs for the railroads, which have started to place substantial orders for repair materials. Special grades of ore have been called for. A month ago these consumers reported that they had on hand or on order sufficient ore for the remainder of the season.

RAW MATERIAL PRICES

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$15.50
Pittsburgh, dist. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Philadelphia, delivered	13.76 to 14.26
Virginia furnace	17.25
Granite City, Ill., fur.	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	18.91 to 19.91
Buff., all-rail, Brooklyn	18.90
Buff., all-rail, Newark	17.28
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	15.75 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	19.40
Buffalo, all-rail, Newark	17.78
Buff., all-rail, Boston	19.91 to 20.91
Virginia furnace	17.75
Eastern, del. Phila.	14.26 to 14.76

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila.	14.76 to 15.26

MALLEABLE

Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Pittsburgh dis. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Chicago, furnace	15.50
Buffalo fur., local del.	16.50
Eastern Penna., delivered	16.13 to 19.41
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	14.50 to 15.00
Pittsburgh, delivered	15.13 to 16.13
Eastern Penn., del.	13.50 to 14.00
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.00

BESSEMER

Valley furnace	14.50 to 15.00
Pittsburgh, furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

LOW PHOS.

Valley fur., standard	25.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	14.00
Pittsburgh district fur.	15.00
Pittsburgh, delivered	15.63 to 16.13

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19.50; 15—$23 to $24.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

BEEHIVE OVENS

Connellsville furnace	$2.00 to 2.15
Connellsville foundry	2.75 to 4.25
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

BY-PRODUCT FOUNDRY

Newark, N. J., del.	8.21 to 8.81
Chicago, ovens, outside del.	7.00
Chicago, del.	7.75
New England, del.	10.00
St. Louis, del.	7.75
Birmingham, ovens	4.50
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	4.50
Portsmouth, O., ovens Connell., basis	4.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, del.	8.50

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania New Jersey furnaces

(Nominal)

Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

(Nominal)

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.50 to 9.00
North African low phos.	7.50 to 8.50
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.00
Newfoundland fdy., 55%	8.00
Tungsten, spot, short ton unit, duty paid	$10.00 to 10.25
Chrome ore, 48% gross ton c.i.f.	$17.00 to 18.00

Manganese Ore

(Nominal)

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55%	24 cents
South African, 52%	22 to 23 cents
South African, 49-51%	21 to 22 cents
South African, 44-47%	20 to 21 cents
Indian, 48-50%	22 cents
Brazilian, 46-48%	18 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$35.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	$35.00
Joliet and East Chicago	47.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

Burned, 9 x 4½ x 2½	$61.50
Unburned, 9 x 4½ x 2½	52.00

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$26.00
Pittsburgh, bassemer	26.00
Youngstown	26.00
Cleveland	26.00
Philadelphia	31.75
Chicago	28.00
Forging, Chicago	33.00
Forging, Pittsburgh	33.00
Forging, Philadelphia	37.75

SHEET BARS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00

SLABS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	38.00

SKELP

All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

Ferromanganese, 78-82%, tidewater, duty paid	$68.00
Ferromanganese, del. Pittsburgh	73.24
Spiegeleisen, 19-20%, domestic fur. spot†	25.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do, 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(The above for spot carlots. Contract price $5 a ton less).	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis; 18%, $2 unitage	50.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.; 24%, $2.75 unitage	65.00
Ferromolybdenum, stand. 50-60 per cent, per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	0.80

†Carloads. Differentials apply to quant.

Fluorspar

85 and 5 per cent grade

Washed gravel, f.o.b. Ill., Ky., net ton car loads	$12.00
Washed gravel, import duty paid tide, gross ton	18.50

Pig Iron

Shipments Increase — More Southern Furnaces Going In— Inquiry for 20,000 Tons, Basic

PIG IRON PRICES, PAGE 50

Pittsburgh—Inquiry for approximately 20,000 tons of pig iron has been issued by the Allegheny Steel Co., Brackenridge, Pa., to cover requirements for six to nine months. A large order for bessemer pig iron is reliably reported to have been closed on last week in this district. Foundry iron shipments in September were larger than in August but still limited to small lots. An order for the Columbia Radiator Co. has been placed. Nominal prices of $15 for bessemer, foundry and malleable irons rule, although the large purchases bring out concessions.

Boston—Following the placing of more than 10,000 tons of pig iron in the New England territory, buying has diminished to a few small lots for truck delivery. Prices are affected by foreign iron.

New York—Shipping instructions for pig iron improved, but new buying in the past week was featureless. Prices are unchanged.

Philadelphia—An inquiry is pending here for 300 to 500 tons of gray forge for a Danville, Pa., consumer. This is the second inquiry for this material within ten days, the other involving 3000 to 5000 tons for a Reading, Pa., melter, still pending. Miscellaneous demand continues light, with prices unchanged. Of the recently noted arrival of close to 6000 tons of Royal Dutch iron, 5000 tons is understood to have been for delivery to a Delaware river pipemaker and 400 or 500 tons to an eastern Pennsylvania pipemaker.

Buffalo—The majority of estimates of sales by Buffalo furnaces in September are close to 50,000 tons. Considerable iron has been booked for delivery extending into the first quarter. Plans for banking a stack have been definitely abandoned, and it will be continued in operation indefinitely.

Youngstown, O.—Some improvement in shipments of pig iron is noted this week, and larger specifications now are in hand. The Sharpsville, Pa., stack of Shenango Furnace Co., relighted Sept. 26, is supplying hot metal to the adjacent plant of the Valley Mold & Iron Co., which has resumed after two years' idleness.

Cleveland—September pig iron shipments by furnace interests with headquarters here were 15 to 20 per cent better than those for August. The buying movement began early in September and gained impetus as the month progressed, but it is now evident that consumption did not step up as actively as sales.

The American Radiator & Standard Sanitary Corp.'s 50,000-ton purchase inspired some buying, as anticipated, and the week's sales are approximately 10,000 tons. Prices are unchanged.

Cincinnati—Demand is broader, but limited to comparatively small lots. Moderate improvement in the melt is reported.

Chicago—Pig iron continues to be influenced favorably by gradual expansion in foundry operations and by the improved outlook among various consumers. September sales and shipments recorded substantial gains over those of August, orders for some interests being double those of the preceding month. The upturn in shipments is expected to be improved upon further during October, with heavier automotive requirements scheduled. Prices are well maintained.

St. Louis—New sales booked here during the week approximated 1800 tons, including 1000 tons by the St. Louis Gas & Coke Corp. This company has blown out its active stack for relining, having been in constant operation six years and having produced 1,250,000 tons of iron in that period.

Birmingham, Ala. — Shipments continue active. The Sloss-Sheffield Steel & Iron Co. is now ready to blow in a stack. Republic Steel Corp. will light one later in October.

Toronto, Ont.—Melters, operating at 20 to 25 per cent, are ordering pig iron only as required, and weekly sales do not vary much from 500 tons. Prices are unchanged.

Ferroalloy Shipments Moving Upward

Ferroalloy Prices, Page 50

A slight gain in September was noted in specifications for ferromanganese and domestic spiegeleisen. Ferromanganese is unchanged at $68, duty paid, in car lots, and domestic spiegeleisen at $25, furnace. The Panama Canal commission has closed on 10,000 pounds of ferrosilicon with F. W. Marshall & Co., Philadelphia, and on 3000 pounds of ferromanganese with the Electro Metallurgical Sales Corp., New York. Bids on an additional 10,000 pounds of ferrosilicon will be opened Oct. 11.

Coke

Foundry Consumption Continues To Gain in Some Districts— Heating Grades Active

COKE PRICES, PAGE 50

Pittsburgh — By-product foundry and furnace coke are in a shade better demand. Furnace coke continues $2, and the foundry grade is $2.75 or $4, depending on grade. An East Liverpool, O., company is making plans to receive coke by river from Neville Island, Pa., for domestic distribution in that region.

New York—Specifications for metallurgical coke continue spotty, but with prices steady. Beehive furnace coke is $1.50 to $2, Connellsville, for heating purposes, and $2 to $2.15, for smelting. Beehive foundry coke is $2.75 to $4.25, western Pennsylvania ovens, depending upon grade. By-product foundry coke is $8.21 to $8.81, delivered, Newark, N. J.; $10, New England; and $8.50, Philadelphia.

Cincinnati—Gains in specifications for by-product foundry coke are noted and attributed to an increase in the melt. Shipments of domestic coke show considerable increase over September, 1931, but this condition is due partly to restraint in spring buying.

Chicago—By-product foundry coke is moving in better volume to small consumers, while heating coke activity has increased materially. Additional improvement in both grades is anticipated for October.

St. Louis—Steady improvement is noted in coke shipments. Southern offers are more liberal.

Birmingham, Ala.—Further improvement is noted in demand for coke, with production slightly above 35 per cent. Coke is being shipped to the West, North, and even into Canada.

Scrap

Neutral Attitude Seen as Buyers and Sellers Hold Off—Further Advance Is Awaited

Chicago—Scrap continues to mark time, with little change in demand or prices. Heavy melting steel continues $5.75 to $6. Large mill stocks preclude large purchases. Small buyers are fairly well supplied on the basis of present consumption and demand is less active than recently. Railroads and other holders of scrap still are speculating on additional price advances and are selling only small lots.

Boston—Buying of steel and iron scrap is irregular with no marked improvement. No. 1 heavy melting steel is unchanged at $5, delivered, Worcester, Mass. One dealer is paying $3.50, shipping point, for outside delivery.

New York — Prices of steel and iron scrap are holding recent gains

IRON AND STEEL SCRAP PRICES

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	5.50 to 6.00
Boston, dealers	3.75 to 4.00
Buffalo, No. 1	7.25 to 7.50
Buffalo, No. 2	6.25 to 6.50
Chicago	5.75 to 6.00
Cleve., No. 1	7.50 to 8.00
Cleve., No. 2	6.50 to 7.00
Det., No. 1 deal.	5.75 to 6.25
Det., No. 2 deal.	4.50 to 5.00
E. Pa. del. mill	7.00 to 7.50
E. Pa., No. 2 del.	5.50 to 6.00
N. Y. deal. R. R.	4.75 to 5.00
N. Y. deal, No. 2	3.50
N. Y. deal. yd.	2.50 to 3.00
Pitts. No. 1	9.50 to 10.00
St. L. No. 1 sel.	6.00 to 6.50
Federal, Ill.	5.50 to 6.00
Granite City, Ill.	5.00 to 5.50
Valleys, No. 1	10.00 to 10.50

COMPRESSED SHEETS

Buffalo, dealers	6.25 to 6.50
Chi. (Factory)	4.25 to 4.75
Cleveland	7.00 to 7.50
Detroit, dealers	5.50 to 6.00
E. Pa. new mat.	5.00 to 5.50
Pittsburgh	9.25 to 9.75
Valleys	9.00 to 9.50

BUNDLED SHEETS

Buffalo	4.00 to 4.25
Cinci., del.	4.25 to 4.75
Cleveland	5.00 to 5.50
Eastern, Pa.	5.00
Pittsburgh	8.00 to 8.50
St. Louis	1.50 to 2.00

SHEET CLIPPINGS LOOSE

Chicago	2.00 to 2.50
Cincinnati	2.00 to 2.50
Detroit, dealers	2.00 to 2.50
St. Louis	1.50 to 2.00

STEEL RAILS SHORT

Birmingham	7.50 to 8.50
Boston, dealers	4.00 to 4.50
Buffalo	9.00 to 9.50
Chicago (3 ft.)	8.00 to 8.50
Chicago (2 ft.)	8.50 to 9.00
Cinci., del.	9.00 to 9.50
Detroit, deal.	8.00 to 8.50
Pitts. (open-hearth, 3 ft. and less)	10.50 to 11.00
St. Louis	7.50 to 8.00

STOVE PLATE

Birmingham	5.50 to 6.00
Boston, dealers	2.50 to 3.00
Buffalo	7.25 to 7.50
Chicago, net	5.75 to 6.25
Cinci., deal. net	3.50 to 4.00
Det., net deal.	3.00 to 3.50
Eastern Pa.	6.50
N. Y., deal. mill	2.50 to 3.00
St. Louis	5.50 to 6.00

COUPLERS, SPRINGS

Buffalo	9.00 to 9.50
Chicago	6.50 to 7.00
Eastern Pa.	9.00 to 9.50
Pittsburgh	9.50 to 10.00
St. Louis	6.00 to 6.50

ANGLE BARS—STEEL

Chicago	7.00 to 7.50
St. Louis	6.00 to 6.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	9.00 to 9.50
Cleveland bld. and bloom crops	10.00 to 11.00
Eastern Pa.	9.00 to 9.50
Pittsburgh billet bloom crops	10.50 to 11.00
Pitts., sheet bar crops	11.00 to 12.00

FROGS, SWITCHES

Chicago	6.00 to 6.50
St. Louis	6.00 to 6.50

SHOVELING STEEL

Chicago	5.75 to 6.00
Cleveland	6.25 to 6.50
St. Louis	5.00 to 5.50

RAILROAD WROUGHT

Birmingham	4.50 to 5.00
Boston, dealers	1.00 to 1.50
Buffalo, No. 1	4.50 to 5.00
Buffalo, No. 2	7.00 to 7.50
Cinci., No. 2	5.75 to 6.25
Chi., No. 1, net	5.00 to 5.50
Chicago, No. 2	5.75 to 6.00
Eastern Pa.	7.00 to 7.50
N. Y., No. 1, deal.	2.50 to 3.00
Pitts., No. 2	9.50 to 10.00
St. Louis, No. 1	3.50 to 4.00
St. Louis, No. 2	5.00 to 5.50

SPECIFICATION PIPE

Boston	3.00 to 4.00
Eastern Pa.	7.00 to 7.50
N. Y., deal	2.00 to 2.25

BUSHELING

Buffalo, No. 1	6.25 to 6.50
Chicago, No. 1	4.50 to 5.00
Cinn., No. 1 dl.	4.00 to 4.50
Cinn., No. 2	2.50 to 3.00
Cleve., No. 2	3.00 to 3.50
Det., No. 1 new deal	4.75 to 5.25
St. L., No. 1	3.00 to 3.50
Val. new No. 1	8.50 to 9.00

MACHINE TURNINGS

Birmingham	3.00 to 3.50
Boston, dealers	0.75 to 1.00
Buffalo	3.75 to 4.25
Chicago	3.00 to 3.50
Cin., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit	3.00 to 3.50
Eastern Pa.	3.50 to 4.00
N. Y., deal	1.35 to 1.50
Pittsburgh	6.25 to 6.75
St. Louis	1.50 to 2.00
Valleys	7.00 to 7.50

BORINGS AND TURNINGS
For Blast Furnace Use

Boston, dealers	.75 to .90
Buffalo	3.75 to 4.25
Cinn., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit, deal.	3.00 to 3.50
Eastern Pa.	3.00 to 3.50
N. Y., deal	1.35 to 1.50
Pittsburgh	6.25 to 6.75

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	3.00 to 3.50
Boston, chem.	5.00 to 5.50
Boston, dealers	1.00 to 1.25
Buffalo	4.25 to 4.50
Chicago	4.00 to 4.50
Cinn., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit, deal.	3.00 to 3.50
Eastern Pa.	3.00 to 3.50
E. Pa., chem.	8.00 to 10.50
N. Y., deal.	1.00 to 1.50
Pittsburgh	6.25 to 6.75
St. Louis	2.75 to 3.25

PIPE AND FLUES

Cinn., deal.	3.25 to 3.50

RAILROAD GRATE BARS

Buffalo	4.00 to 4.50
Chicago, net	5.00 to 5.50
Cincinnati	4.00 to 4.50
Eastern Pa.	5.50 to 6.00
N. Y., deal.	3.50 to 4.00
St. Louis	4.50 to 5.00

FORGE FLASHINGS

Boston, dealers	2.00 to 2.50
Buffalo	4.50 to 5.00
Cleve. ov. 10 in.	6.50 to 7.00
Detroit	4.00 to 4.50

FORGE SCRAP

Boston, dealers	1.75 to 2.00
Chicago	7.00 to 7.50
Eastern Pa., del.	5.00 to 5.50

ARCH BARS, TRANSOMS

Chicago, net	5.00 to 5.50
St. Louis	5.00 to 5.50

AXLE TURNINGS

Boston, deal.	6.00 to 6.50
Buffalo	6.50 to 7.00
Chi., elec. fce.	5.00 to 5.50
Cleveland	5.50 to 6.00
Eastern Pa., del.	7.00
Pittsburgh, O. H.	8.00 to 8.50
St. Louis	3.50 to 4.00

STEEL CAR AXLES

Birmingham	9.00 to 9.50
Boston, ship. pt.	6.00 to 6.50
Buffalo	10.00 to 10.50
Chicago, net	8.50 to 9.00
Eastern Pa.	14.50
St. Louis	9.00 to 9.50

SHAFTING

Boston, ship. pt.	6.50 to 7.00
N. Y., deal.	6.50 to 7.00
St. Louis	7.50 to 8.00
E. Penna.	11.00 to 12.00

CAR WHEELS

Birming., iron	6.50 to 7.50
Boston, iron deal.	3.50 to 4.00
Buffalo, iron	7.00 to 8.00
Buffalo, steel	8.50 to 9.00
Chicago, iron	7.00 to 7.50
Chi., rolled steel	6.50 to 7.00
Cincinnati iron	6.25 to 6.75
E. Pa. steel	9.00 to 10.00
E. Pa. iron	9.00 to 9.50
Pitts., iron	8.50 to 9.00
Pitts., steel	9.50 to 10.00
St. Louis, iron	5.00 to 5.50
St. Louis, steel	7.00 to 7.50

NO. 1 CAST SCRAP

Birmingham	6.50 to 7.00
Buffalo (Mach.)	9.75 to 10.00
Buffalo, cupola	9.00 to 9.25
Boston, textile	7.00 to 7.50
Boston No. 2	3.00 to 3.50
Chi., mach. net	6.50 to 7.00
Chi., railroad, net	6.00 to 6.50
Chicago, agri., net	5.00 to 5.50
Cinn., mach. cup.	7.00 to 7.50
Cleve. cupola	7.00 to 8.00
Det., net deal.	6.50 to 7.00
E. Pa. cupola	9.00 to 9.50
N. Y., cup. deal.	5.50 to 6.50
N. Y., del. local foundries	8.00 to 8.50
Pitts., cupola	9.50 to 10.00
San Fran., del.	13.50 to 14.00
Seattle	4.50 to 6.50
St. L. No. 1 ma.	6.50 to 7.00
St. L., No. 1	6.00 to 6.50

HEAVY CAST

Boston, del.	4.00 to 4.25
Bost., mach. cast	7.00 to 7.50
Buffalo, break	6.50 to 7.00
Cleve., break	4.50 to 5.00
Detroit, auto, net deal.	7.00 to 7.50
Det., break., dl.	5.00 to 5.50
Eastern Pa.	8.50 to 9.00
N. Y. No. 1, dl.	5.00 to 5.50
N. Y. break, dl.	4.75 to 5.25
Pittsburgh	8.25 to 8.75

MALLEABLE

Boston Consum.	7.50 to 8.00
Buffalo	7.50 to 8.00
Chicago, agri.	5.00 to 5.50
Chicago, R. R.	6.50 to 7.00
Cinci., R. R., del.	7.50 to 8.00
Cinci., agri. del.	7.00 to 7.50
Cleveland, rail	7.50 to 8.00
Det. auto deal.	5.00 to 5.50
St. Louis, rail	4.50 to 5.00

RAILS FOR ROLLING
5 feet and over

Birmingham	7.00 to 7.50
Boston, deal.	5.00 to 5.50
Buffalo	7.00 to 7.50
Chicago	7.00 to 7.50
Eastern Pa.	9.50
New York dealer	4.25 to 4.75
St. Louis	7.25 to 7.75

LOCOMOTIVE TIRES

Chicago, cut	7.00 to 7.50
St. L., No. 1	5.00 to 5.50

LOW PHOS. PUNCHINGS

Chicago	8.00 to 8.50
Buffalo	9.00 to 9.50
Eastern Pa.	9.50 to 10.00
Pittsburgh	11.00 to 11.50

and the general list is firm. Buying is light, including a barge shipment of No. 1 steel to an eastern Pennsylvania melter, for which $5 was paid.

Philadelphia—While little consuming demand is noted, local scrap dealers, having had a taste of higher prices, are making no effort to stimulate business by offering concessions. At the same time, consumers are making no drive for lower prices. Except for an advance in steel shafting, prices are unchanged. Shipments on No. 2 steel for Phoenixville, Pa., and Conshohocken, Pa., continue to be held up.

Buffalo—A local melter is said to have increased awards for No. 2 heavy melting steel to a total of 7500 tons, of which a good share will be brought here by canal. The prices averaged $6.50 to $6.75 delivered, it is reported.

Pittsburgh—The strong tone continues and in spite of the absence of new mill buying there are enough open orders to supply strength to the market for some time. The 3150-ton Baltimore & Ohio list includes 1500 tons of iron car wheels and 500 tons of heavy melting steel, whereas the Pennsylvania railroad's list, which totals approximately 30,000 tons, involves 9000 tons of heavy melting steel, 8000 tons of scrap rails, and 1550 tons of cast iron wheels. There is little demand for specialty items with activity confined to four or five leading scrap grades.

Cleveland—Despite considerable iron and steel scrap trade activity recently in adjoining districts, the northern Ohio markets remain quiet, with only occasional carloads of miscellaneous grades moving to consumers. Cleveland yards did not participate in the recent sale of 20,000 tons of heavy steel for delivery at the Lorain, O., works of the National Tube Co. Quotations are unchanged.

Detroit—While No. 1 heavy melting steel remains unchanged at $5.75 to $6.25, some of the lighter grades in the past week have moved up more in line with this level. Such advances include compressed sheets, turnings, borings and mixed borings. This is indicative of underlying strength and makes dealers confident that melting steel shortly will again lead the procession.

Cincinnati — Dealers continue to find difficulty in supplying iron and steel scrap at prevailing prices, with demand steady. Quotations are unchanged on the basis of small lot trading.

St. Louis—September witnessed well defined improvement in the iron and steel scrap market. There is a larger volume of inquiry and sales are more numerous, though mainly of small lots, an exception being the acquisition of a round tonnage of heavy melting steel and steel specialties by the American Steel Foundries.

Birmingham, Ala.—While better feeling is noted, nothing definite has happened to warrant advanced prices. Heavy melting steel consumers have been purchasing a little more than immediate needs.

Toronto, Ont. — Specialized trading continues in iron and steel scrap. Current demand runs largely to machinery cast and sales of No. 1 are being made. Some improvement is noted in steel scrap in the Montreal market, although sales are in small spot lots. Prices are unchanged.

Wire Shipments in Gain; Farm Areas Take More

Wire Prices, Page 43

Chicago—Little change is noted in recent wire specifications and shipments, although September showed a fairly substantial increase over August. The better movement to agricultural districts was largely seasonal. Demand for manufacturers' wire has improved slightly. Prices continue $2 in carloads for wire nails and 2.25c for plain wire.

Worcester, Mass. — Demand for wire has improved with the number of orders larger but generally small individually. Prices are firm and unchanged.

Pittsburgh — Mill shipments of nails, plain wire and other wire products were moderately better last month than in August. Plain wire is firm at 2.20c, Pittsburgh, and nails are $1.95 minimum in keg lots.

Cleveland—Carload orders for wire are more numerous, but smaller lots predominate, many being trucked to consumers. Wire rod demand has improved.

Semifinished Steel Orders Still Small

Semifinished Prices, Page 50

Occasional carload orders for billets are in the market but shipments as a whole are not showing much change from August. Valley open-hearth operations are expanding slowly. Billets, sheet bars and slabs are firm at $26, Pittsburgh, and forging billets are holding $33. Indicative of the small size of semifinished orders, was one placed last week for seven tons of billets involving three analyses and seven sizes.

Babcock & Wilcox Tube Co., Beaver Falls, Pa., has declared a dividend of 50 cents on the common stock, the same as three months ago.

Equipment

Await Closing on Large Volume of Pending Work

Chicago — Sales of machine tools and plant equipment are improving at an extremely slow rate. In most instances equipment purchased is urgently required and what modernizations programs are being carried on involve more repair work than new equipment. Pending work represents a larger volume than was true during the preceding several months, although inquiry recently has been spotty. Little business is being received from the railroad and farm implement industries, and what betterment has occurred in demand and inquiries is fairly well distributed among other users. Small lists of woodworking and metalworking tools are pending for several state institutions. Other inquiries usually involve only individual items. Recent purchases by steel companies have been light.

Worcester, Mass.—Several textile equipment builders in this district are reported to be proceeding at a more active rate. Demand for parts has improved somewhat, but machinery and equipment sales generally are unchanged from the past several weeks.

Pittsburgh—No award is yet announced on work for the American Sheet & Tin Plate Co., which includes 3 and 4-high mills and the new list of pending mill equipment work has been small the past week. The imposing list of contemplated work still is enough to create considerable discussion but actual orders and appropriations for this work appear as remote as last summer.

Cleveland—Sales and inquiry for machinery and equipment are unchanged over the past week. A fair volume of small orders continues but large buyers are out of the market, with the exception of the list for a truck builder here, noted on this page last week. It is reported that this inquiry is still in the pending stage.

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 6.25c, Conn., for copper

SHEETS	
Yellow brass (high)	12.50
Copper, hot rolled	15.37½
Lead sheets, cut, to jobbers	7.00
Zinc sheets (100-lb. base)	9.00
TUBES AND PIPES	
Seamless yellow brass (high)	15.25
Seamless copper	14.37½
RODS	
Yellow brass (high, full turning)	10.25
Naval brass	11.37½
ANODES	
Copper, untrimmed	12.25
WIRE	
Yellow brass (high)	12.50

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	3.00 to 3.25
Chicago	3.25 to 3.50
Cleveland	3.00 to 3.25
St. Louis	2.50
HEAVY YELLOW BRASS	
New York	2.00 to 2.25
HEAVY COPPER AND WIRE	
New York	3.87½ to 4.12½
Chicago, No. 1	3.75 to 4.00
Cleveland	3.50 to 3.75
St. Louis	2.75
COMPOSITION BRASS BORINGS	
New York	2.87½ to 3.12½
YELLOW BRASS TUBING	
Cleveland	2.00 to 2.25
LIGHT COPPER	
New York	3.50 to 3.75
Chicago	2.75 to 3.00
Cleveland	3.00 to 3.25
St. Louis	2.50
LIGHT BRASS	
Chicago	1.75 to 2.00
Cleveland	1.50 to 1.75
St. Louis	1.50
LEAD	
New York	2.00 to 2.12½
St. Louis	2.25
ZINC	
New York	1.12½ to 1.37½
Cleveland	1.00 to 1.25
St. Louis	1.25
ALUMINUM	
Clippings, new, soft, Cleve.	9.00 to 10.00
Clippings, hard, Cleveland	7.00 to 8.00
Borings, Cleveland	3.00 to 3.50
Mixed cast, Cleveland	4.00 to 4.50
Mixed cast, St. Louis	2.50 to 3.00

Secondary Metals

Remelt, aluminum No. 12	7.50 to 8.50
Brass ingots, 85-5-5-5	6.25

Metals

Lead Declines $8 a Ton During Week — Zinc Prices Also Weaken But Copper Holds

New York—Lead sagged sharply last week. With the exception of slight easiness in zinc, however, other metals maintained a fairly steady position.

Copper — Sellers held quotations firm during the week on electrolytic for delivery through first quarter of 1933 at 6.25c, Connecticut, 6.12½c, refinery and 6.37½c, Middle West. A little business was booked but this mostly was for delivery in early 1933. Fabricators were reported to be well covered, particularly in view of the further slackening which has developed recently in demand for copper and brass products. The trade has been watching political developments in Great Britain where the government is expected to adopt a 2-pence duty on the red metal, which will cut into the business of American-owned mines. Copper has been selling abroad at around 6.00c, c.i.f. European ports.

Lead—Prices were cut an aggregate of 40 points on the first three days of the week, bringing the quotations down to 3.00c, New York, and 2.85c, East St. Louis. These quotations represented cuts of $8 a ton for the week and $12 compared with the figures which had been ruling during the major portion of September. Poor demand and the reluctance of one large producer to stock metal from custom ore at a comparatively higher price were back of the cuts. A little more business was done at the lower prices but consumers already had been well covered for October requirements.

Zinc—Demand for zinc was dull but prices held fairly well until late in the week when prime western metal eased ten points to 3.15c, East St. Louis. High grade metal held well inasmuch as the statistical position of this branch of the trade is fairly satisfactory.

Tin—Prices moved in a narrow range with trading of such limited proportions on some days as to make them practically nominal. The London market exerted its usual influence on prices.

Antimony—Demand was dull although prices held steady.

Aluminum — No change occurred in prices but sales were light.

Quicksilver Firm

New York — Quicksilver prices continue firm, and buying proceeds at the improved rate of a week ago. Small lots are quoted $48 a virgin flask of 76 pounds for prompt delivery, while lots of 25 flasks or more command $47 a flask.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26

Per Pound at Producers' Plants in 250-Pound Drums

Phenol	0.153 to 0.173

Per Pound at Producers' Plants

Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75

Per 100 Pounds Atlantic Seaboard

Sulphate of ammonia	$0.90 to $1.00

Finds Bars Misrouted

Washington—Carload shipments of reinforcing steel specially fabricated for concrete bridges from Bessemer, Ala., to Gardner, Winston and Zolofo Springs, Fla., have been found to have been misrouted by Examiner T. Naftalin in a proposed report to the interstate commerce commission following a rehearing in the case of the Dudley Bar Co. against the Atlantic Coast Line railroad.

Nonferrous Metal Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
Sept. 24	6.25	6.37½	6.00	24.87½	25.07½	3.40	3.25	3.25	22.90	5.62½	35.00
Sept. 26	6.25	6.37½	6.00	24.75	24.95	3.30	3.15	3.25	22.90	5.62½	35.00
Sept. 27	6.25	6.37½	6.00	24.50	24.70	3.15	3.00	3.25	22.90	5.62½	35.00
Sept. 28	6.25	6.37½	6.00	24.75	24.95	3.00	2.85	3.25	22.90	5.62½	35.00
Sept. 29	6.25	6.37½	6.00	24.70	24.90	3.00	2.85	3.20	22.90	5.62½	35.00
Sept. 30	6.25	6.37½	6.00	24.50	24.70	3.05	2.90	3.15	22.90	5.62½	35.00

STEEL, WROUGHT AND CAST IRON PIPE, AND TUBING

Welded Iron, Steel Pipe

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to consumers in carloads. **Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.**

BUTT WELD

Steel In.	Blk.	Gal.	Iron In.	Blk.	Gal.
¼ & ⅜	57	34	½	28	10½
½	62	49½	¾	33	16½
¾	65½	55	1—1¼	36	20½
1—3	67½	57	2	38	21

LAP WELD

2	61	50½	2	26	12½
2½ to 6	64½	54	2½—3½	33	18½
8	62	51	4—6	35	22
10	60	49	7—8	34	21½
12	59	48	9—12	31	16½

BUTT WELD

Extra strong, plain ends

⅛	48	33	¼ & ⅜	+7	+41
¼ & ⅜	53½	38½	½	28	12½
½	59	49½	¾	33	17½
¾	63½	54	1—2	39	23

LAP WELD

Extra strong, plain ends

2	59	49½	2	34	18½
2½ to 4	62½	53	2½—4	39	25
5 & 6	62	52½	4½—6	38	24
8	58	47	7 & 8	36	22
10	51½	40½	9—12	26	13½
12	50½	39½			

STEEL LINE PIPE

2 to 3 butt	66½	2½ to 6 lap	63½
2 lap	60	8 lap	61
10 lap	59	12 lap	58

Discounts on steel pipe are net and not subject to any point or preferential. On iron pipe, the discounts shown on the cards are net, and are not subject to any further discounts or preferentials.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir.	**$32.00 to 33.00**
Four-inch, Birmingham	**36.00 to 37.00**
Four-inch, Chicago	43.40 to 44.40
Six to 24-inch, Chicago	40.40 to 41.40
Six-inch and over, N. Y.	32.00 to 34.50
Four-inch, New York	34.50 to 36.50
Stand. fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore*	2.35c
Boston	**3.25c**
Buffalo	**2.95c**
Chattanooga	**3.00c**
Chicago	**2.75c**
Cincinnati	**3.00c**
Cleveland	**2.75c**
Detroit	**2.85c**
Houston	**2.65c**
Los. Ang.	3.30c
New York‡(d)	**3.10c**
Philadelphia	**2.45c**
Pittsburgh	**2.60c**
Portland	3.35c
San Fran.	3.25c
Seattle	3.00c
St. Louis	**3.00c**
St. Paul	3.00c
Tulsa	**3.25c**

IRON BARS

Baltimore	2.35c
Boston	3.25c
Buffalo	**3.15c**
Chattanooga	**3.00c**
Chicago	**2.75c**
Cincinnati	**3.00c**
Detroit	**2.85c**
New York‡(d)	**3.10c**
Philadelphia	**2.45c**
St. Louis	**3.00c**
Tulsa	**3.25c**

REINFORC. BARS

Baltimore	**2.35c-3.00c**
Boston	**3.10c-3.25c**
Buffalo	**2.95c**
Chattanooga	**3.00c**
Cincinnati	**3.00c**
Cleveland	**2.10-2.25c**
Detroit	**2.85c**
Houston	**3.00c**
Los. Ang. cl.	**2.10c**
Los Ang., lcl	**2.40c**
New York	**2.65c-3.10c**
Phila.	**2.26½c**
Pittsburgh	**2.60c**
San Fran. cl.	**2.50c**
San Fran. lcl	**2.80c**
Seattle	**3.00c**
St Louis	**3.15c**
Tulsa	**3.25c**
Young.	**2.30c-2.60c**

SHAPES

Baltimore*	2.35c
Boston	**3.35c**
Buffalo	**3.20c**
Chattanooga	**3.20c**
Chicago	**3.00c**
Cincinnati	**3.25c**
Cleveland	**2.95c**
Detroit	**3.10c**
Houston	**3.25c**
Los. Ang.	**3.30c**
New York(d)	**3.10c**
Philadelphia	**2.45c**
Pittsburgh	**2.85c**
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	**3.25c**
St. Paul	3.25c
Tulsa	**3.50c**

PLATES

Baltimore*	2.35c
Boston	**3.35c**
Buffalo	**3.20c**
Chattanooga	**3.20c**
Chicago	**3.00c**
Cincinnati	**3.25c**
Cleveland, ¼-in. and thicker	**2.95c**
Clev., 3/16-in.	**3.20c**
Detroit	**3.10c**
Det., 3/16-in.	**3.10c**
Houston	**3.00c**
Los Angeles	**3.30c**
New York(d)	**3.30c**
Philadelphia	**2.45c**
Phila. floor	**5.10c**
Pittsburgh	**2.85c**
Portland	3.35c
San Fran.	3.25c
Seattle	3.00c
St. Louis	**3.25c**
St. Paul	3.25c
Tulsa	**3.50c**

NO. 10 BLUE

Baltimore*	2.80c
Boston	3.50c
Buffalo	**3.45c**
Chattanooga	**3.50c**
Chicago	**3.20c**
Cincinnati	**3.30c**
Cleveland	**3.00c**
Detroit	**3.35c**
Houston	**3.35c**
Los Ang.	3.60c
N. Y.	3.00c
Portland	4.00c
Phila.*† (e)	**2.90c**
Pitts.**	**3.00c**
San Fran.	3.50c
Seattle	4.00c
St. Louis	**3.45c**
St. Paul	3.45c
Tulsa	**3.70c**

NO. 24 BLACK

Balt.*†	**3.50c**
Boston	**4.20c**
Buffalo	**3.70c**
Chattanooga	**3.65c**
Chicago	**3.55c**
Cincinnati	**3.75c**
Cleveland	**3.25c**
Detroit	**3.50c**
Los Ang.	**4.20c**
New York	**3.75c-4.00c**
Phila.*†(e)	**3.40c**
Pitts.**	**3.40c**
Portland	**4.50c**
San Fran.	**4.05c**
Seattle	**4.50c**
St. Louis	**3.80c**
St. Paul	**3.695c**
Tulsa	**4.75c**

NO. 24 GAL. SHEETS

Balt.*†	**4.00c**
Boston	**4.75c**
Buffalo	**4.05c**
Chattanooga	**3.95c**
Chicago	**4.10c**
Cincinnati	**4.25c**
Cleveland	**3.75c**
Detroit	**3.75c**
Houston	**4.25c**
Los. Ang.	**4.50c**
New York	**4.00c-4.10c**
Phila.*†(e)	**3.75c**
Pitts.**	**3.90c**
Portland	**5.00c**
San. Fran.	**4.55c**
Seattle	**5.00c**
St. Louis	**4.35c**
St. Paul	**4.19c**
Tulsa	**5.10c**

†BANDS

Baltimore	2.65c
Boston	3.75c
Buffalo	3.30c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	3.80c
New York(d)	3.30c
Philadelphia	2.75c
Pittsburgh	2.95c
Portland	3.85c
San Fran.	3.65c
Seattle	3.50c
St. Paul	3.20c
Tulsa	3.45c

†HOOPS

Baltimore	2.65c
Boston	4.90c
Buffalo	3.95c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.65c
Det. No. 14 & lighter	3.30c
New York	3.30c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	**3.75c**

†New extras apply.

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)*	3.48c
Boston	3.60c
Buffalo	3.00c
Chattanooga*	3.68c
Chicago	3.00c
Cincinnati	3.32c
Cleveland	2.95c
Detroit	3.15c
Los Ang. (a)	4.25c
New York	3.39c
Philadelphia*	3.35c
Pittsburgh	2.95c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.20c
St. Louis	3.36c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.25c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(a) Rounds, hex, only.
(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
‡Domestic bars.
*Plus quan. extras.
**Less than 25 sheets.
*†50 or more bundles.

Europe

World Inquiry Gives European Markets Better Feeling—Orders for Export Being Booked

London—(*By Radio*)—Sentiment continues to gain, but actual business improvement is disappointingly slow. Overseas inquiries are expanding, especially from Australia, Canada and the Far East, orders from these sources having been booked recently. Continental competition seems to be lessening. A Scottish tube works has taken some export orders.

Continental reports confirm the improvement and tell of expanding inquiry from India, the Far East, South America and Scandinavia. A large South African order for steel sleepers has been given to mills in Belgium, France and Luxemburg.

Pacific Coast

Best Sales for Months with Large Water Project Near

San Francisco—(*By Air Mail*)—Decided improvement in demand for iron and steel products on the Pacific Coast is evidenced in the fact that awards placed, in most lines, are heavier than in several months. Bookings of reinforcing steel bar awards were the largest in over four months, while cast iron pipe lettings were the highest for any week so far this year. In addition, structural shape awards involved more tonnage, by far, than any week since the middle of June.

One of the largest new projects that, it is thought, will be released for figures soon is the metropolitan water district of Southern California, requiring 150,000 tons of reinforcing steel, 47,000 tons of structural steel and over 15,000 tons of rails.

Awards of reinforcing bars aggregated 1729 tons. The Pacific Coast Steel Corp. booked 600 tons for barracks at Hamilton Field, Calif. Unnamed interests took 275 tons for a weir at Colusa, Calif. Blue Diamond Co. secured 112 tons for work on the Verdugo Wash, Los Angeles. New bids will be received in 255 tons for a bridge at Bakersfield, Calif., Oct. 13.

Demand for plates remains light and awards involved small tonnages only. Bids will be opened Oct. 4 for 100 tons of riveted steel pipe for an irrigation project at Terra Bella, Calif. Bids will be called soon on 85 helium tanks for the Sunnyvale, Calif., dirigible base, involving 600 tons of material. Prices are general at 2.00c, c.i.f.

Structural shape awards exceeded 2100 tons. Important lettings included 919 tons for barracks at Hamilton Field, Calif., placed with McClintic-Marshall Corp. Consolidated Steel Corp. secured 175 tons for a bridge over Del Amo avenue, Los Angeles. New bids will be opened Oct. 13 for 1041 tons for a bridge over the Kern river near Bakersfield, Calif. Other pending business included 260 tons for a bridge over the San Gabriel river, Calif., and 114 tons for a post office at Oroville, Calif.

Better Tonnages Moving

Seattle—Considerable improvement is reported by the jobbing trade in the Pacific Northwest. Volume is well in advance of a month ago and as prices are being well maintained, the situation looks firmer. On some items Portland is working on higher price levels, local dealers not yet having taken similar action.

Awards this week were confined to shapes and pipe. Portland Bridge Co. has the award for 290 tons of structurals for a span over the Missoula river, Paradise, Mont. Isaacson Iron Works, Seattle, took 65 tons for a state bridge in Clallam county, Wash. United States Pipe & Foundry Co., Burlington, N. J., is low bidder for 200 tons of 30-inch cast iron pipe for Portland, and Lease & LeGrande, Great Falls, Mont., have the contract for an improvement at Deer Lodge, Mont., involving about 1000 tons of cast iron pipe. Puget Sound Bridge & Dredging Co., Seattle, has the general contract for constructing a breakwater at Santa Monica, Calif., involving 575 tons of structurals, 990 of plates and 1237 tons of reinforcing steel. The steel items will be awarded in California.

Seattle is in the market for 115 tons of 20-inch centrifugal or sand cast iron pipe. Orting, Wash., opens bids Oct. 4 for 2100 feet of 4 inch cast iron. Navy department opened bids Nov. 2 for 2½ miles of 6-inch cast iron pipe for the naval ammunition depot, Hawaiian Islands. The scrap market has developed no activity and sales for export have disappeared.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Sept. 29

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	
PIG IRON		£ s d		£ s d L s d
Foundry, 2.50-3.00 Silicon	$10.09	2 18 6	$ 8.76 to $9.25	1 16 0 to 1 18 0
Basic bessemer	9.32	2 14 0*	6.81	1 8 0
Hematite, Phos. .03-.05	10.35	3 0 0	.....	.....
SEMIFINISHED STEEL				
Billets	$16.82	4 17 6	$9.49	1 19 0
Wire rods, No. 5 gage	25.88	7 10 0	21.90	4 10 0
FINISHED STEEL				
Standard rails	$26.74	7 15 0	$26.77	5 10 0
Merchant bars	.96c	6 5 0	.53c	2 8 6
Structural shapes	1.14c	7 7 6	.46c	2 2 0
Plates, †¼ in. or 5 mm.	1.35c	8 15 0	.62c to .63c	2 17 0 to 2 17 6
Sheets, black, 24 gage or 0.5 mm.	1.23c	8 0 0	1.21c to 1.24c	5 10 0 to 5 12 6
Sheets, gal., 24 gage, corr.	1.46c	9 10 0	1.43c to 1.46c	6 10 0 to 6 12 6
Bands and strips	1.19c	7 15 0	.66c to .69c	3 0 0 to 3 2 6
Plain wire, base	1.46c	9 10 0	1.18c	5 7 6
Galvanized wire, base	1.77c	11 10 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.69c	11 0 0	1.21c	5 10 0
Tin plate, box 108 lbs.	$ 2.76	0 16 0	$3.20	0 13 2

British ferromanganese $68 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks	
Fdy. pig iron, Si. 2.5	$10.09	2 18 6	$ 8.04	205(2)	$ 8.48	305	$16.42	69
Basic bessemer pig iron	9.32	2 14 0*	6.86	175(1)	7.65	275	17.97	75.50
Furnace coke	2.07	0 12 0	4.86	124	3.06	110	4.57	19.20
Billets	17.25	5 0 0	14.50	370	10.15	365	22.97	96.50
Standard rails	1.27c	8 5 0	1.25c	697	1.50c	1,150	1.37c	127
Merchant bars	1.02c	6 12 6	.95c	530	.55c	420	1.19c	110
Structural shapes	1.35c	8 15 0	.99c	550	.53c	410	1.16c	107.50
Plates, †¼-in. or 5 mm.	1.39c	9 0 0	1.17c	650	.75c	575	1.37c	127
Sheets, black	1.27c	8 5 0§	1.44c	800‡	.85c	650‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm.	1.42c	9 5 0	2.83c	1,570	1.76c	1,350	4.00c	370
Plain wire	1.46c	9 10 0	2.03c	1,130	1.95c	1,500	1.92c	178
Bands and strips	1.46c	9 10 0	1.04c	580	.78c	600	1.37c	127

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basis price.
British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

BOSTON—General Sales Corp. has been incorporated with $50,000 capital to deal in machinery, by B. A. Larson, Winchester, Mass.; Paul R. Boomhower, Falmouth, Mass. and Thomas H. Patten, Somerville, Mass.

EVERETT, MASS. — New England Tank & Tower Co., 42 Main street, is taking bids on a 1-story, 50 x 145-foot plant at 81 Toleston street, to cost $40,000.

QUINCY, MASS.—D. B. and F. E. McDonald, 17 Silver street, are asking bids on ten 50-foot diameter steel tanks and a pump house, to cost over $25,000.

ROCKLAND, ME. — Rockland-Rockport Lime Co. is having plans made for a hydrated lime mill to cost about $80,000.

New York

BUFFALO—Alhar Welding & Engineering Corp. has been incorporated with $20,000 capital to manufacture metal products, by Klocke & Rovner, Buffalo.

BUFFALO — Hatch, McKay-Nash Corp. has been incorporated with $250,000 capital and 500 shares no par value, to build and operate a machine shop, by Whitman, Ransom, Coulson & Goetz, 40 Wall street, New York.

LONG ISLAND CITY, N. Y.—Sands Lubricants Co., 37-18 Twenty-second street, has leased a plant 50 x 180 feet and will equip it for the manufacture of lubricants. Tanks and equipment will be purchased.

MOUNT VERNON, N. Y.—Stewart Combustion Corp. has been incorporated with 200 shares no par value to manufacture oil burners and heating devices, by Cardozo & Nathan, 1 Wall street, New York.

NEW YORK — Edmar Distributing Corp. has been incorporated with $10,000 capital to deal in metals, by F. X. Mancuso, 1775 Broadway.

NEW YORK—Eastern Smelting & Refining Co. has been incorporated with 100 shares no par value to manufacture metals, by S. Paymer, Jamaica, N. Y.

NEW YORK—Turner Construction Co., Graybar building, has contract for 2-story steel pier shed and office on pier 68, West Twenty-eighth street, North river, for Delaware, Lackawanna & Western railroad.

NEW YORK—Sinclair Refining Co., 45 Nassau street, plans extensions to its plants at Houston, Tex., and Coffeyville, Kans., as part of $2,500,000 construction program now under way.

NEW YORK—Noise Abatement Products has been incorporated with 100 shares no par value to manufacture window mufflers for abating noises, by Gresser, Starr & Walker, 116 John street, New York.

NEW YORK—Po-Chip-To Corp. has been incorporated with 50 shares no par value to manufacture machines for producing potato chips, by A. S. Feld, 12 East Forty-first street, New York.

ROCHESTER, N. Y.—Pfaudler Co. is adding to its facilities for the manufacture of all-welded tanks up to 10,000 gallons capacity.

New Jersey

BAYONNE, N. J.—Bracher Agate & Abrasive Co. has been incorporated with $25,000 preferred stock and 500 shares no par value, to shape and grind semi-precious stones, by Tucker & Tucker, Bayonne, N. J.

CARLSTADT, N. J.—Valley Chemical Works plans to rebuild plant recently burned.

JERSEY CITY, N. J.—Savary & Glaeser Inc. has been incorporated with $125,000 capital to manufacture steel and iron, by Morey M. Beck, Jersey City, N. J.

NEWARK, N. J.—Reichman & Hoffmn Bros. Inc. has been incorporated with $100,000 capital to operate a steel and iron scrap business, by Meyer C. Ellenstein, 17 Academy street, Newark, N. J.

TRENTON, N. J.—Trenton Auto Wrecking Co. has been incorporated with 2500 shares no par value to wreck automotive vehicles and deal in parts, by L. B. Levine, Trenton, N. J.

Pennsylvania

PITTSBURGH — Dravo Contracting Co., Neville Island, Pa., has taken a contract to build a pier, retaining wall, ice-breaker and tipple at Nemacolin, Pa., for the Buckeye Coal Co.

PITTSBURGH—Board of education will close bids Oct. 12 for steel library shelving for various public schools in Pittsburgh.

SHEFFIELD, PA.—J. M. O'Connor Machine Co. is building a new plant 34 x 84 feet on the site of its burned plant. Provision is made for addition of a blacksmith shop later.

TITUSVILLE, PA.—Titusville Dairy Products Co. has awarded contracts for an addition and boiler house. Sherwood, Von Tacky & Sherwood, Titusville, have the general contract.

YORK, PA.—York Burner Co., manufacturer of oil burners and equipment, is outlining an expansion program for its works.

Ohio

AKRON, O.—McNeil Machine & Engineering Co. has been incorporated with 500 shares no par value to operate a manufacturing business, by Charles W. Berry, and Charles E. Smoyer, Akron, O.

ALLIANCE, O.—Machine Steel Castings Co. has resumed operations after being closed several months, on its regular line of orders.

BARBERTON, O.—Franz Foundry & Machine Co. of Ohio has been incorporated with 250 shares no par value to operate a foundry, by Criss W. Franz and Sheck & Stevens, 430 Second National Bank building, Akron, O.

WAPAKONETA, O.—John C. Turner Corp. has been incorporated with $20,000 capital to operate a factory for the manufacture of steel toys at Dayton, O., by Anderson & Lusk, Wapakoneta, O., attorneys.

Michigan

BATTLE CREEK, MICH.—A-B Stove Co. Inc. has acquired manufacturing rights to a line of electrical ranges to add to its line of gas ranges and will add to its manufacturing facilities. R. W. Lynn is sales manager.

GRAND RAPIDS, MICH. — Grand Rapids Gas Light Co. plans additions to its gas plant, including purifiers, to cost about $35,000.

KALAMAZOO, MICH.—U. S. Steel Products Co., 763 East Vine street, has added the manufacture of sheet steel arc welded furnaces to its line of products, in charge of C. L. Watson. C. V. Brown is president. The company moved from Ypsilanti to Kalamazoo in 1930, occupying the former plant of the Harrow Spring Co.

MUSKEGON, MICH. — Austin Machinery Corp., 2969 Lake Shore drive, has been incorporated with 500 shares no par value to manufacture machinery, by W. E. Jeannot, 1691 Jefferson street.

WAKEFIELD, MICH.—City council has authorized engagement of an appraising firm to make a survey and furnish an opinion on the feasibility of a municipal electric light and power plant.

Indiana

AUBURN, IND.—Bids will be received until Oct. 15 by commissioners of DeKalb county for Bauer and Gipsy Hill bridges, to cost $18,500.

BUTLERVILLE, IND.—Board of directors for the school for feeble minded, Butlerville, is making plans for modernizing and improving its powerhouse, including a new boiler and auxilaries. Charles A. McGonagle, Fort Wayne, Ind., is superintendent.

INDIANAPOLIS—Mitchum & Schaefer Inc. has been incorporated with 100 shares no par value to manufacture sheet metal products, by James J. Mitchum, and Michael P. Schaefer.

LAWRENCEBURG, IND.—Rossville

Commercial Alcohol Corp. is planning to build a plant here to cost about $200,000.

Illinois

CHICAGO—R. E. Electric Mfg. Co., 500 South Throop street, has been incorporated with 200 shares no par value to manufacture electric irons, by Frick & Debusk, 840 Monadnock block.

CHICAGO—Pioneer Plating Co. Inc., 2105 North Cicero avenue, has been incorporated with $10,000 capital to conduct a general plating, polishing and finishing business, by Frederick A. Smith, 134 North LaSalle street.

CHICAGO—Aluminum Skylight Co., 179 North Wells street, has been incorporated with 300 shares no par value to manufacture and install skylights and window frames, by Joseph C. Miller, 704 Chicago Temple building, 77 West Washington street.

CHICAGO—Gordon Bros. Iron & Metal Co., 119 North Curtis street, has been incorporated with $25,000 capital to deal in steel and iron scrap, by Murray Miller, 704 Chicago Temple building, 77 West Washngton street.

CHICAGO—E. Samuelson Inc., 7010 Cottage Grove avenue, has been incorporated with $5000 capital to manufacture blowpipes, engines, boilers and machinery, by Maurice J. Green, 105 West Adams street, room 1642.

DANVILLE, ILL.—Browning Equipment Co. is building a new plant on the site of the one recently burned, to be fireproof.

KANKAKEE, ILL.—Edwin Pratt's Sons Co., Charles E. Pratt president and treasurer, 1118 West Court street, is fabricating about 900 tons of structural steel for several small jobs in the vicinity. The Pratt company recently bought the machinery and equipment of the Beckwith Iron Co., Chicago, and is moving it to Kankakee, thus enlarging its productive capacity.

MORRIS, ILL.—H. A. Tollberg, city hall, Ottawa, Ill., is making plans for a pumping station, including pumps and motors, for Morris. Cost estimated at $35,000.

Southern States

BESSEMER, ALA.—Commissioners of Jefferson county, Birmingham, Ala., plan installation of pumping machinery, other power equipment, tanks and similar equipment for sewage disposal plants at Bessemer and Ensley, Ala., each to cost about $225,000. Fuller & McClintock, 170 Broadway, New York, are engineers.

BIRMINGHAM, ALA.—Selma Mfg. Co., 1700 Vanderbilt road, plans installation of a power plant to cost $35,000.

WASHINGTON — Potomac Electric Power Co. plans a steel tower transmission line from Ellicott City to its line near Washington a 100,000-horsepower substation and switching station, to cost about $300,000. Power will be taken from Safe Harbor Water Power Corporation, Baltimore.

WASHINGTON—Bureau of supplies and accounts, navy department, will receive bids until Oct. 11 on schedule 8769 for one motor-driven inclinable press for delivery at Mountain View, Calif.; on schedule 8771 for two motor-driven wire-feed screw machines for delivery to Puget Sound, Wash.; on schedule 8793 for one motor-driven toolmaker's precision lathe, for delivery to Puget Sound, Wash.

NEW ORLEANS—McDermott Surgical Instrument Co., 734 Poydras street, plans erection of a new plant, to cost $45,000.

SHREVEPORT, LA.—Louisiana Tubeless Pump Co., J. E. Lucas president and H. Wells Snowde vice president and general manager, has established offices at 210 Ward building and plans construction of a plant to manufacture oilfield pumps.

MORRIS, MISS.—Bonds for $150,000 have been authorized for a municipal electric light plant. Robert J. Torrens, Shubert building, St. Paul, Minn., is consulting engineer.

POPLARVILLE, MISS.—City council plans construction of a municipal electric light and power plant and an electrically operated pumping plant for the water system, to cost about $100,000. Vinson B. Smith Jr., Gulfport, Miss., is consulting engineer.

HUNTINGTON, W. Va.—Bids will close Oct. 6 on one 700-gallon steel pump priming tank and two vertical triplex plunger pumps, with motor, for London lock power house, by United States engineers here.

Missouri

DONIPHAN, MO. — Current River Power Co., 605 R. A. Long building Kansas City, Mo., has surveys under way for a hydroelectric plant at Gartman Rock on Current river, 26,000 horsepower capacity, to cost $1,500,000. Holland, Ackerman & Holland Inc., 20 North Wacker drive, Chicago, is engineer.

ST. LOUIS—Marlo Electric Co. has bought a site on Manchester avenue, east of Knox avenue and will build a plant there as soon as plans can be drawn.

Arkansas

CLARKSVILLE, ARK.—Clarksville Ice Co. plans a 1-story ice manufacturing plant, to cost about $40,000.

Oklahoma

DUNCAN, OKLA. — Southern Steel Products Co. has been incorporated with $100,000 capital by James L. Patterson.

Texas

FORT WORTH, TEX.—General Engineering Corp. has been incorporated with $10,000 capital to manufacture steel, iron and metal products, by Paul V. Barman, president.

TYLER, TEX.—United Iron Works has been incorporated with $10,000 capital, by Ralph C. Myers, president and general manager.

Wisconsin

ABBOTTSFORD, WIS. — Fred W. Moecker, village clerk, has taken bids for a municipal sewage collecting and disposal plant after plans by Bruar & Milinowski, consulting engineers, 904 Globe building, St. Paul, Minn.

MILWAUKEE—Contracts have been placed by Bass Bros., wholesale scrap dealers, for a 2-story addition, 30 x 108 feet, at their plant at 3161 North Thirty-first street.

MILWAUKEE—Development & Research Corp. has been incorporated with $25,000 capital to promote design and development of mechanical devices, by Ray E. Gest, 2449 North Fifth street.

MILWAUKEE—Super Steel Products Co., 324 West McKinley avenue, is low bidder at $14,421 on metal roofing, panels and vents for the new transit shed of the Milwaukee outer harbor improvement.

MILWAUKEE—J. Greenebaum Tanning Co., 3217 West Hampton avenue, has had plans prepared for a 4-story manufacturing addition, 74 x 198 feet, estimated to cost $80,000 with equipment. Richard Kaupert is engineer in charge.

Minnesota

MINNEAPOLIS—Flour City Ornamental Iron Co. is making additions and improvements to its plant here.

Colorado

ENGLEWOOD, COLO. — Municipal Power Development Co., Pence building, Minneapolis, has a contract for a municipal electric light and power plant, one story, 80 x 100 feet, including oil engine-generating units and auxiliary equipment, a pumping station, elevated steel tank and tower and equipment for the municipal waterworks. Cost is estimated at $600,000.

Montana

COLUMBIA FALLS, MONT. — Preliminary work is being done preparatory to developing the North Fork coal fields, 34 miles north of here.

Idaho

BOISE, IDAHO—Bids for construction of a 2-story garage to cost $40,000 are being taken by officials of the veterans' administration, Homer Hudelson manager, to include repair shops and storage.

Pacific Coast

HOLLYWOOD—C. S. Warnock is building a plant at 825 North Hobart boulevard to manufacture air conditioning equipment for cars and buses.

SAN FRANCISCO—Western Machinery & Stamping Works, 640 Natrona street, has been formed to manufacture

pumps and dies. R. Ostendahl is manager.

SAN FRANCISCO—A. C. Wagner has bought a site at Bryant and Harriett streets and will build a metal manufacturing plant.

PORTLAND, OREG.—Dairy Co-operative association is having plans made by Claussen & Claussen, architects, for a plant of concrete construction, 100 x 200 feet, at East Main and Twelfth streets, to include cold storage facilities.

HOQUIAM, WASH. — Northwestern Lumber Co. has let a contract to Rowland Bros., Hoquiam, for construction of a railroad connection between its tracks and the Saginaw line, in preparation for future logging operations.

PUGET SOUND, WASH.—The navy department has allocated $455,000 to the local navy yard for repairs and improvements.

Dominion of Canada

VANCOUVER, B. C.—Gas Chambers and Coke Ovens Ltd., London, Eng., general contractors for equipping the new gas plant of the British Columbia Railway Co., has let subcontracts: Producer plant and machinery room equipment to Power Gas Corp., Stockton, Eng.; exhauster, tar extractors, scrubbers, washers, purifiers, condensers and heavy cast iron connecting pipe to Robert Dempster & Sons Ltd., Elland, Yorkshire, Eng.; three tar tanks and one underground liquor tank to Ross & Howard Iron Works Ltd., Vancouver.

New Trade Publications

INDUCTION MOTORS—Fully enclosed, induction motors are discussed in bulletin 112 by the Reliance Electric & Engineering Co., Ivanhoe Road, Cleveland.

MAGNESIUM ALLOYS—Dow Chemical Co., Midland, Mich., has published additional data sheets covering chemical compositions and uses of Dowmetal alloys.

BRONZE—Herculoy, a new engineering bronze recently developed by Revere Copper & Brass Inc., New York, is described in a booklet recently published by that company.

ENGINEERING SERVICE—A bulletin by Edwin S. Carman Inc., 1643 Lee road, Cleveland, outlines the type of work handled by that company, using as an illustration several problems recently solved.

COLD STRIP REELS—United Engineering & Foundry Co., Pittsburgh, in its bulletin No. P-203 describes its cold strip reels for reeling, coiling, winding, blocking and uncoiling of cold-rolled metal strips in rolling mill work. It is illustrated.

PUMPS—A pumping unit with a built-in electric motor and dustproof ball bearing construction is illustrated and described in a bulletin of Ingersoll-Rand, 11 Broadway, New York. Illustrations showing applications of the pump are included.

HINGE TUBES—Smith & Richardson Mfg. Co., Geneva, Ill., has issued a catalog giving much engineering data on hinge tubes and tin forms. Sketches show how tin forms can be used as well as other types of chaplets, skim gates, door catches.

SEALING SOLUTION—A four-page bulletin describing its sealing solution for porous castings has been published by the Bakelite Corp., 247 Park Avenue, New York. In addition to describing the action of the material the bulletin also includes instructions for use.

DEOXIDIZER — Silicon-manganese alloys for the deoxidation of steel are discussed in bulletin No. SM-1, by the Electro Metallurgical Co., Carbide and Carbon building, New York. It is pointed out that the proper use of alloys leads to a cleaner steel.

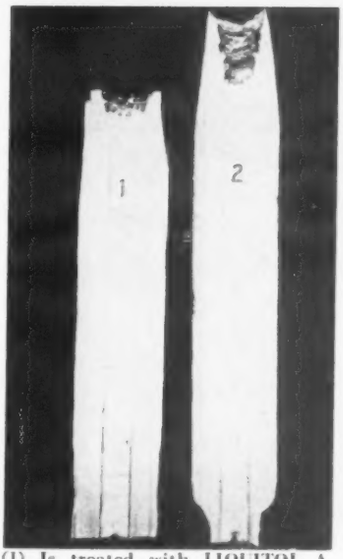
GAS GENERATOR—A self-contained generating unit operating on a standard liquid fuel for all industrial heating applications is described and illustrated in a bulletin by the Railway Locomotor Co., 59 East Van Buren street, Chicago. It is pointed out that in core ovens, annealing ovens, kilns and similar applications, low fuel consumption is secured and temperatures may be maintained and controlled with great accuracy.

ELECTRIC HEAT TREATING FURNACE—An illustrated four-page leaflet, "Electric Belt Conveyor Furnace" has been published by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. It describes and illustrates application and uses of that type of equipment. The furnace is designed especially for such parts as require duplicated uniformity of heat treatment.

DESULPHURIZING—Mathieson Alkali Works, Inc., 250 Park Avenue, New York City, has published in bulletin form the paper by George S. Evans entitled "Modern Tendencies in Cupola Practice—Including Hot Blast and Desulphurizing." This paper originally was presented at the cupola session of the Detroit convention of the American Foundrymen's association.

CENTRIFUGALLY CAST PIPE—United States Pipe & Foundry Co., Burlington, N. J., has published its "Handbook of deLavaud Cast Iron Pipe Centrifugally Cast." It includes a brief description of the manufacturing processes, characteristics of the product, standard specifications for deLavaud cast iron pipe centrifugally cast, types of joints, method of computing thickness of pipe, and other data.

Let LIQUITOL Reduce YOUR INGOT COSTS



(1) Is treated with LIQUITOL A SPECIAL, the fluid metal is only poured to half of the head. The formation of the hole is such that the ingot is quite solid. The savings in 16 of these ingots is 1 ingot. This is only used for refined steel, that is to say, tool steel, cutting steel, and special steels of high quality.

LIQUITOL retards Cooling of hot-top metal.

Working on the theory that secondary piping is caused by occluded gases, it follows that if the hot-top is kept open longer gases have a better chance to escape.

Liquid metal in the hot-top allows for proper feeding and reduction in hot-top volume up to 40%.

LIQUITOL is recommended in production of alloy steel, as it is guaranteed not to contaminate metal.

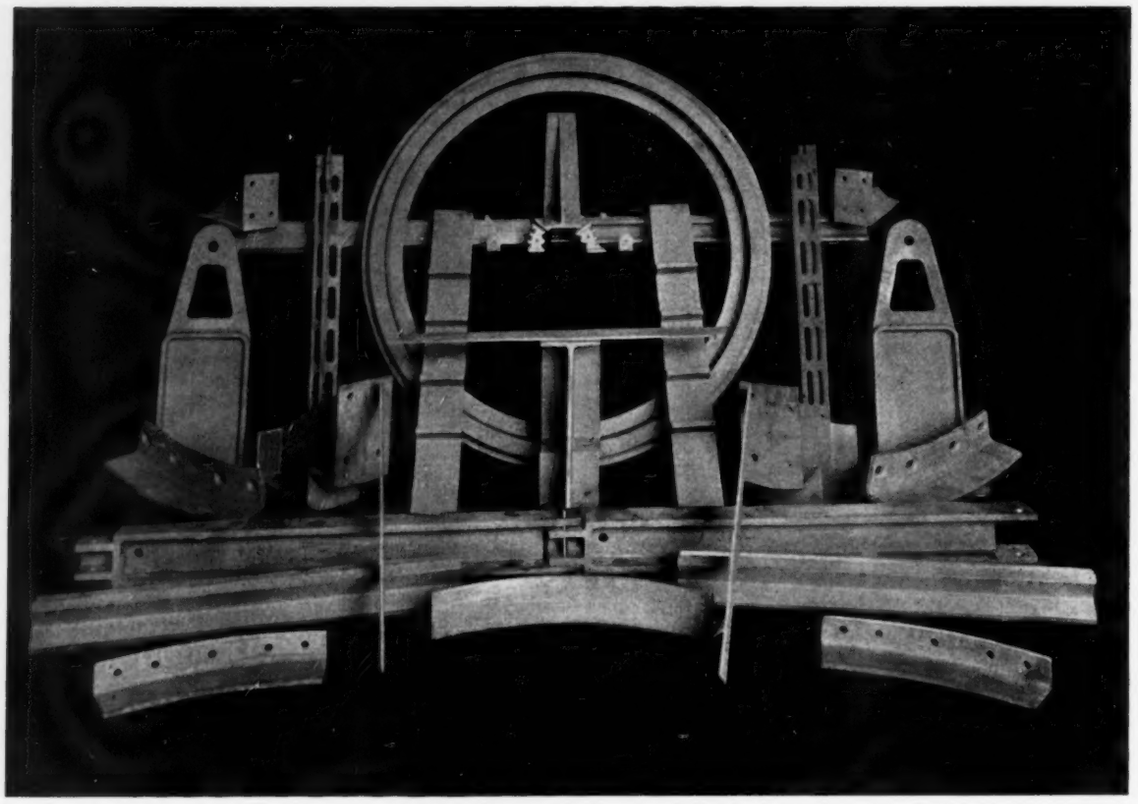
LIQUITOL prevents bridging of hot-top metal, allowing a natural feed of metal down the hot-top sides.

THE ALPHA-LUX COMPANY, INC.

192 Front Street

NEW YORK CITY

Philadelphia Chicago



"Chromax" Furnace Parts
made by
DRIVER-HARRIS COMPANY, HARRISON, N. J.

PERFORATED METALS

for Every Requirement in

STEEL, BRASS, BRONZE, COPPER, ZINC, TIN-PLATE, MONEL, LEAD, STAINLESS IRON, ETC.

Perforated to Your Order

Round Holes from .020" to 7" — Oblong and Slot Holes from .008" to 3" wide
Ornamental Patterns — Square Holes of Standard Sizes for

Grain Separating and Grading, Ore Sizing and Screening, Coal Screening and Washing, Pulp and Paper Mills, Sugar Refining, Grilles and Ventilators, Machine and Belt Guards, Irrigation Wells, Drying Floors, Or any other purpose

OUR ENTIRE PLANT IS DEVOTED TO PERFORATING

THE HARRINGTON & KING PERFORATING CO.

5634 FILLMORE ST., CHICAGO, ILL., U. S. A. NEW YORK OFFICE, 114 LIBERTY ST.